









"HUMANISING technological change has been the business of the Labour movement from its inception." That is the claim of Ian Benson, divisional organiser of the TASS administrative and supervisory section of the Amalgamated Union of Engineering Workers, and chairman of the NEDC Computer Manpower Committee. Benson, one of the most active trade unionists in the computer field, explains in this article why he believes that, in taking up

the challenge "Issuing from the croquet lawns of Hedsor Park" — the annual of last year's ACM/Computer Weekly conference on "Can computers save Britain? — the collective voice of computer professionals elided via the trade

union movement to their colleagues in industry will prove to be of major significance in finding solutions to the social and other problems that are being posed by the challenge of information technology.

miss production technology so they have increasingly turned to collective action to defend their interests. The rush in job trade unions began in earnest in the late sixties. TASS, for example, the largest staff organisation in engineering, doubled its size in 1970 between 1970 and 1977.

Even computer staff have become increasingly militant. Within TASS, the central government and bank unions, they have established their own representative structures. Their battles for trade union recognition have been every bit as bitter as those of their predecessors.

This increase in membership represents growing strength to the trade union movement. Computer staff in particular bring with them considerable industrial potential.

But this is not all they bring. As the debate initiated in the columns of Computer Weekly and elsewhere about the human use of their technology takes its roots in the labour movement, it is essential that their collective intelligence is applied alongside that of their colleagues in industry to the solution of these new social problems.

Who knows? It might even be the case that it will be their voice, taking up the challenge issued from the croquet lawns of Hedsor Park, which is remembered when the history of our time comes to be written.

The firm's managing director, ex-IBM account manager Alwyn Farey-Jones, says that some big computer users have lost a lot of money through electrical supply damage or mechanical derangements like core memories falling apart because neither the supplier nor the insurer had agreed to cover the cost of repair.

Chad is on holiday. On-time will be back soon.

## Plugging the gaps in DP insurance

CI policies are directly related to the protection provided by manufacturers' maintenance agreements in such a way that risks not covered by the agreement are covered by the policy.

Other insurance areas being considered by Computer Insurances include providing cover for consequential loss — the overall effect on a business of its computer breaking down — and fidelity guaranteeing. This would involve insuring the trustworthiness of an employee in an installation.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

computer breaking down — and fidelity guaranteeing. This would involve insuring the trustworthiness of an employee in an installation.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

computer breaking down — and fidelity guaranteeing. This would involve insuring the trustworthiness of an employee in an installation.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

Computer Insurances is a division of a much older insurance broking firm, Forey-Jones (Insurance) Ltd of Chipstead, Surrey. CI's telephone number is 01-580 5816.

# Can computer staff save Britain?

By Ian Benson



WHEN software houses were nothing but a twinkle in the eyes of budding entrepreneurs, TASS, the Engineering Staff Union, was learning to deal with the introduction of computers into the manufacturing process.

Humanising technological change has been the business of the labour movement from its inception. Indeed, it owes its very existence in part to the activities of small groups such as the followers of General Ludd, who opposed the introduction of the factory system itself at the turn of the 19th Century.

The Luddites had considerable public support, as E. P. Thompson noted in *The Making of the English Working Class*: "What was at issue was the 'freedom' of the capitalist to destroy the customs of the trade whether by new machinery, by the factory system, or by unrestricted competition, beating down wages, undercutting his rivals and undermining standards of craftsmanship."

Although the Luddites were eventually defeated in their campaign of direct action to resist the spread of the factory system, their activities were directly an influence on the widening of the franchise and a century of progressive legislation on the formation of trade unions and the regulation of conditions of employment.

As the labour movement has developed, its attitude towards technological change has had close links with the prevailing level of unemployment.

As late as 1965, the TUC could write: "The contrast between the present day and the position

a century ago is dramatic. Any trade unionist of that time with the ability to foresee the technological changes that had taken place in the past century, might well have feared that all the goods and services produced a hundred years ago could have been supplied with a fraction of the 1870 labour force. In fact, scientific and technological change has made many new products possible and our requirements have increased at least as fast as industry's ability to meet them."

The TUC took comfort from the fact that there was a consensus of opinion among the

political parties that "mass unemployment is the result of ineffective or erroneous economic and social policies or the failure of the institutions concerned with those policies or both, rather than of technological change itself."

Now, with the Manpower Services Commission prophesying a shortfall of jobs of some 2.5 million in 1981, attention is once again concentrated on the potential of technology to destroy jobs, and it is the computer which is bearing the brunt of the scrutiny.

The European Metalworkers' Federation, which groups Western European engineering unions, adopted a document on the development of data processing last November, which stated, "The EMF in no way shares the optimism of certain governments, employers and the European Commission that the new technologies in the field of informatics will have a favourable effect on the employment situation in general and the number of jobs in particular."

The TUC has gone further and expressed concern about the

way in which the introducing of computer systems changes the flow of information in enterprises, and makes it more difficult for workers to understand and control the processes which dictate the pace of their work.

At the sharp edge of the technology, computer staff themselves have seen this happen. In recent years they have seen to varying degrees the de-skilling of jobs, the quickening tempo of work and the spread of unsocial hours working.

De-skilling is perhaps most apparent in programming areas. Here automation of computer program writing made possible by more powerful machines has enabled the boundaries of the division of labour in these areas to be redrawn. There has been a growth in so-called 'chief programmer' teams, organisations which break down programming into a range of routine design, coding and testing operations, carried out by staff of lower qualifications grouped around one or two specialists. Meanwhile, operations staff have been increasingly required to work systematic shifts. So

much so that their general level of pay now reflects a substantial element of shift premia. It has risen 172% over the last five years compared to programmers who have only received an increase of 100%. An unfortunate side effect of the re-arranging of the furniture of the industry has been the difficulty it has caused to career progression.

As staff become exposed to forces which their shop floor colleagues experienced with the introduction of mechanisation

Chad is on holiday. On-time will be back soon.

are you self-employed?

If you are then you will probably know that your N.I. Contributions go down to 10% Use this surplus to start a personal pension scheme.

With a saving equivalent to £200 of gross income, this could be invested to provide a pension or a tax free lump sum plus a personal retirement.

Computer Save are brokers who specialise in serving the computer industry. Contact Leslie Frost by telephone or letter for your personal quotation.

COMPUTER SAVE INSURANCE AND MORTGAGE CONSULTANTS 209 WYKE ROAD, WYKE, WIMBORNE, DORSET BH20 2AA

## ICL 1903

Our company is interested in buying ICL 1903 equipment.

Approximate configuration:

ICL 1903 CPU 64K 2 or 3 EDS 60 4 Tape units 1500 BPI, 9 Track 1 Line printer 180 pps 1 Paper Tape Reader

Delivery End of 1978 or beginning of 1979.

Please address your quotation to:

Box 108 125 20 Avenue London

## Computer Marketing

### TERMINALS

NL	Numbrix Light type range of British VDU's	Price from	£535
ME	480 Instruments high speed console data recorder	Price from	£432
M22	Microfilm high speed paper tape reader	Price from	£946
ITALY	NEW 67613 160 CPS. 80 character keyboard printer	Price from	£1875
	LASER DECIMALITY	Price from	£860
	ASR DECIMALITY incorporating paper tape	Price from	£1814
K&N	Acoustic Coupler	Price from	£206

### SYSTEMS

Autonomous	Mod 1001 Mod 1002 Mod 1003 Mod 1004 Mod 1005 Mod 1006 Mod 1007 Mod 1008 Mod 1009 Mod 1010	Price from	£984
------------	---	------------	------

For more information contact: Computer Marketing Ltd, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

## Fire safety views wanted by BSI

A DRAFT of the newly-revised British Standard Code of Practice for the fire protection of DP installations is available for public comment.

The committee which produced the draft had differing views on the need for, and hazards of, installing total gas flooding and/or automatic sprinkler systems in computer areas. Views are sought on this and other aspects of the draft.

Copies of the document are available from the BSI General Office, 101 Pentonville Road, London N1 9ND. The price is £1.50, and the last date for comments is the end of June.

## Good news for Amdahl

FOLLOWING its first Italian installation at the Phinice Ministry (CW, April 27), Amdahl Corp is negotiating four other contracts with various government agencies in Italy. Amdahl has installed its first system with Simca in Franco (CW, February 22), and a second 470V/6 in an order for this French Chrysler subsidiary. The systems are two of six ordered by Chrysler from its Detroit head office.

## Nips system market aim

AIMED at small to medium-sized manufacturing companies, the Nixdorf Inventory and Production Control System has been launched at £30,000, or £850 per month for hardware, software and maintenance.

Developed by Computer Systems Developments of London, Nips will run on the minimum Nixdorf 8870/1 disc-based computer which already has a user base of 1,500 systems throughout Europe.

Programmed in Basic, Nips

comprises five modules: inventory management, bills of material processing, material requirements planning, production control, and costing.

As a transaction is entered from a terminal in the relevant department, part numbers or supplier codes are checked against master files, and when a valid transaction is completed all relevant master files are updated. It is then possible to display or print any one of the up-to-date system reports.

## 9400 conversion aids on 90/40s

THE new Univac 90/40, announced last week (CW, April 27) provides a wide range of conversion facilities for the OS/4 operating system users on the 9400 and 9430, but does not actually run the operating system.

The conversion aids to enable users to migrate to the modern OS/3 used on the 90/30 and 90/28 include support for almost all the old peripherals; comprehensive translation aids for assembler, programs, files, libraries and the job control language; and financial incentives to encourage users of the old Univac machines to migrate.

No comprehensive prices have been published for the machine in the UK, but Univac says that a typical configuration with 512K bytes of memory sells for about £200,000.

The new machine comes with a minimum of 200 Megabytes on disc, expandable to a maximum of over 5,000 Megabytes. Main memory expands from the basic 512K bytes in 128K byte steps to one Megabyte.

The memory cycle is enhanced to 500 nanoseconds compared with 600 nanoseconds on the 90/20, and a new instruction pre-fetch facility improves processor throughput by 30%.



## Clocking up your phone calls...

A CLOCK that is not only a clock but tells you how much your telephone conversations are costing, has been introduced by Monitel, a new UK company.

Also known as Monitel, the device is micro-based and comes in two versions; one for calls within the UK and the other for international/UK calls. Both versions sit beneath the telephone but are not connected to it in any way — as the manufacturers are quick to point out — so it does not contravene Post Office regulations.

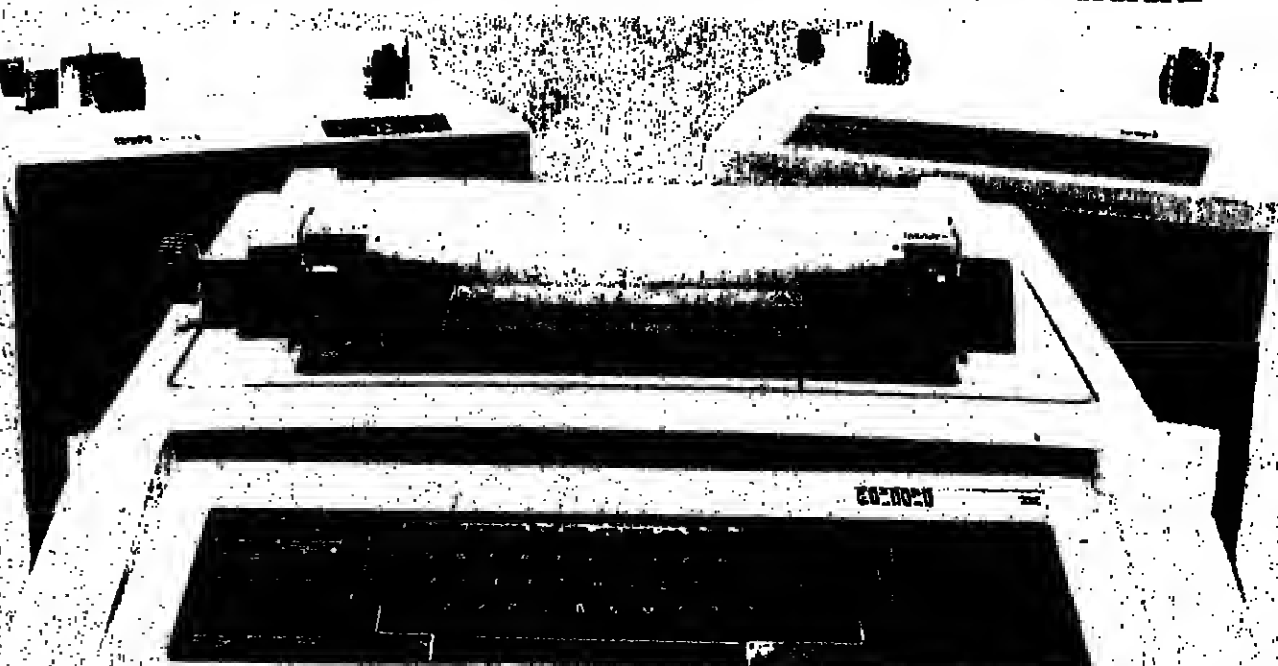
Using Monitel requires the caller only to press a button relating to the relevant Post Office charge rate, given in the dialling code book, and another that starts the calculation sequence when the call is connected.

Charge data data is not stored in electronic memory but on a punched card that can be replaced if the rates are altered. The VAT rate and time of the call — whether during a cheap tariff period or not — also form part of the calculation.

Monitel costs about £30 for the UK version and £40 for the international one.

A possible cure for those telephone hang-on headaches is the Monitel Telephone Charge Clock which gives a second by second indication of how much a telephone call is costing. The UK company manufacturing it, also called Monitel, says that the new product will result in up to a 35% saving on telephone bills. Shown in the photo is the international version.

## New prices for the DECwriter II. New performance with the DECwriter III.



### LA-36. New low prices.

Industry standard. Two 30 cps

We've expanded our manufacturing capability considerably which allows us to reduce our LA-36 price dramatically. So now you get all the top-product features of the LA-36 DECwriter II — like full-line width, upper/lower case six-part font capacity, a full range of options — at a price you'd hardly believe possible. Want it in writing? Use the Computer Call us.

Send me price news on the LA-36 □

Name

Company address

### LS-120. New high performance.

1200 baud. 180 cps. The outgoing leader

The market's changing. High-speed terminals are increasingly needed. Stay ahead by getting details on the LS-120 DECwriter III — it's going to be a market leader. 180 cps. It's microprocessor-based. What's more, it's highly compatible with the LA-36, which gives it a built-in same design guide. It's a real family. Ask for information now — you'll need it soon. It's your money's worth.

Performance news on the LS-



The general expectation seems to be that somehow the programs become more readable, and thus more maintainable. As I have indicated earlier (CWJ Jan. 12 and

machines to evaluate the degree of structuredness of such logic, to evaluate the degree of testness, to construct test cases, and to evaluate the validity of those test cases.

machines to evaluate the degree of structuredness of such logic, to evaluate the degree of testness, to construct test cases, and to evaluate the validity of those test cases.

Flow measures the number of linearly independent paths in a program, to get a measure of "cyclomatic complexity" which corresponds to an intuitive idea of

# Adapso in legal clash over US patent refusal

## PROGRAMMER

## NOTES

**EDITED BY PETER HEWITT**

# Easit method of Euro classification

Both reports will be published in the near future. Among speakers at the con-

## UK distributor

THE scientific bureau Selcon has increased the range of services offered to chemical engineers. A link has been forged between the Physical Property Databank Service, PPDS, and Herwell's shell and tube heat exchanger design program, TASC 2, thus short-circuiting otherwise laborious calculations.

## er sought by Pathfinder

## UK distributor sought by Swedes for Pathfinder

...also available.

processes. It also generates frequency tables for those processes executed.

According to the developers

the main use of the package is to enable project leaders to assess the completeness of program testing, it can also be used to locate frequently-executed procedures as a guide to optimisation, or to locate unauthorised code in EDP-auditing.

Written in Cobol, the package will run on any machine with an ANSI Cobol compiler. It will sell for around £1,500.

## PROGRAMMER NOTES

## 'Basic name for each major variable'

with marks which have is  
cracked and a small injury  
on the right shoulder blade  
bone.

but couldn't see what was going on. I was  
in the room, I was in the room, I was in the room.

370/158

**CPU's and Memory**  
Any size, any configuration, any delivery

3031 and 3032 leases also available.

To discuss your requirements, call  
Geoff Sewell, Doug Bridgewater, or  
Ed Robbins.

**CPS BROKERS LTD.,**  
Serck House, Warwick Road, Solihull  
West Midlands, B91 3DG

8-021-704 2855, Fax 339302

Written in Cobol, the package will run on any machine with an ANS Cobol compiler. It will call

**DECLAB-11/O3.  
THE LABORATORY  
COMPUTER THAT  
COSTS NO MORE THAN  
A CALCULATOR  
SYSTEM.**

It will simultaneously collect analogue and digital data directly from your laboratory instrumentation, analyse that data and store it on industry standard floppy disks.

DECLAB-11/03 can be used as a compact computer system for dedicated tasks in product development and research. Or as a portable system working between laboratories and other departments. It is also usable as an intelligent terminal in a computer network.

For capability, flexibility and much more, the DECLAB-11/03 brings computing into the laboratory—at a price you normally pay for a calculating system. For the Small Systems Facts File phone David Watt—043871 5202 (24 hour line).

Small Systems Sales Dept.,  
Digital Equipment Co. Limited,  
The Hall, Church Street,  
Welwyn, Herts., AL6 9NY.

Sept 11<sup>th</sup> 1890

# 184 Coral 66 compilers now available!

[illegible]

**A PROVEN PRODUCT  
PRICES FROM £8,800**

In 1973 Systems Designers Limited embarked on a project partly-funded by the NCO to produce a robust and efficient CORAL 66 compiler suitable for use on many computers. The product is now available on all machines in the table, either as a resident or cross compiler. Customer acceptance of the product indicates the high degree to which our objectives have been met.

## COMPILER FEATURES

- Official Definition CORAL
- Extensive error recovery and diagnostic
- Compiles to assembler code
- Efficient code generation
- Links to standard FORTRAN libraries
- Plain text error reports
- Trace and bound check facilities
- Fully supported by Systems Designers
- CORAL 88 training courses available
- Optional MASCOT language features

or further information, contact  
Tony Gilborn, Sales  
Systems House  
7-11, High Street  
Rimley, Surrey GU16 6HJ  
Telephone: Camberley (0276) 83471  
Telex: 866221





Contact  
Stuart Moore

**place**

**LYME**



for details:  
**01-452 0490**

**TEL 01-493 9577 or 061-439 6931**

**ICS. Full Features**  
**Delivery May/June 1978**  
**For Short or Long Term Lease**  
**Peripherals available**  
**Phone: J. T. Henderson**  
**01-890 7158**

**FULLY CONFIGURED**  
AVAILABLE MAY/JUNE 1978  
For Short or Long Term Lease  
**40%-60% off IBM Rental**  
Phone: J. T. Henderson  
**01-890 7158**

**CONTACT US TODAY  
FOR MORE  
INFORMATION**

**ALAN RUSSELL, GENERAL FREIGHT CO. LTD.**  
Telephone: 01-353 7474, Ext. 2670. Telex: 819433

**Phone: 01 488 2630**

St. Helierport Rd., London SW6 6LJ  
278-01385/9677 Telex 210040

specification of core to order  
confirmed delivery August 18th, September 22nd, and November 3rd  
Prepared to sell or lease.  
Reply Box No. 1942

Special interest and experience in Fortran/Algol applications and conversions on H  
1800 and 2870 installations. Current contracts include language and machine-  
machine conversions for Central and Local Government.  
As a small professional company, we offer a fast response at low cost.  
For further information ring Les Urdford, 15 St. Cross Road, Winchester, Hants. T  
Winchester (0462) 58167.

If you are interested in a particular article/special feature or advertisement published in this issue of

## COMPUTER WEEKLY

why not take advantage of our reprint service.

Reprints can be ordered at reasonable cost in your own specifications providing an attractive and valuable addition to your promotional material. 300 copies order \$50.

For further details contact:

John Owsen, W.C. Reynolds Ltd, (Phone 01 261 8892) or simply complete and return the form below.

To: Ben Durrant, Rapping Apartments, Dorset House, Rapping Street,  
 London, SE1 0JL  
 I am interested in  
 obtaining a head-  
 copy of the article  
 featured in  
 COMPUTER WEEKLY  
 in the issue dated  
 1986-01-13  
 Please send me full details of your service including details of your  
 terms  
 Delivery  
 Charges

# DATAFILE

creates files of any block size  
any record size any field  
format with any field  
contents in many main-  
frame and minis.

**MAKES THOROUGH PROGRAM  
TESTING EASIER AND QUICKER**

Please write for copy of Free Facts Only  
to: **Intertec Software Corp.** 2314  
E. 1st St. Salt Lake City, UT  
84143, April 1985, \$11

**INFO**

**AND - to protect your land from physical intrusions set voltage and frequency cautions.**  
**Voltage and Frequency Monitors.**

Head Office Bank Chambers 311 Broadview Avenue South, Washburn  
 Chicago SK7 1A1 Tel 031 344 0132

01-960 1000

[illegible]

Specified as follows: 3115 1107 2588 1111 1112 1113 1114 1115 1116 1117 1118 1119 1120 1121 1122 1123 1124 1125 1126 1127 1128 1129 1130 1131 1132 1133 1134 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144 1145 1146 1147 1148 1149 1150 1151 1152 1153 1154 1155 1156 1157 1158 1159 1160 1161 1162 1163 1164 1165 1166 1167 1168 1169 1170 1171 1172 1173 1174 1175 1176 1177 1178 1179 1180 1181 1182 1183 1184 1185 1186 1187 1188 1189 1190 1191 1192 1193 1194 1195 1196 1197 1198 1199 1200 1201 1202 1203 1204 1205 1206 1207 1208 1209 1210 1211 1212 1213 1214 1215 1216 1217 1218 1219 1220 1221 1222 1223 1224 1225 1226 1227 1228 1229 1230 1231 1232 1233 1234 1235 1236 1237 1238 1239 1240 1241 1242 1243 1244 1245 1246 1247 1248 1249 1250 1251 1252 1253 1254 1255 1256 1257 1258 1259 1260 1261 1262 1263 1264 1265 1266 1267 1268 1269 1270 1271 1272 1273 1274 1275 1276 1277 1278 1279 1280 1281 1282 1283 1284 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294 1295 1296 1297 1298 1299 1300 1301 1302 1303 1304 1305 1306 1307 1308 1309 1310 1311 1312 1313 1314 1315 1316 1317 1318 1319 1320 1321 1322 1323 1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344 1345 1346 1347 1348 1349 1350 1351 1352 1353 1354 1355 1356 1357 1358 1359 1360 1361 1362 1363 1364 1365 1366 1367 1368 1369 1370 1371 1372 1373 1374 1375 1376 1377 1378 1379 1380 1381 1382 1383 1384 1385 1386 1387 1388 1389 1390 1391 1392 1393 1394 1395 1396 1397 1398 1399 1400 1401 1402 1403 1404 1405 1406 1407 1408 1409 1410 1411 1412 1413 1414 1415 1416 1417 1418 1419 1420 1421 1422 1423 1424 1425 1426 1427 1428 1429 1430 1431 1432 1433 1434 1435 1436 1437 1438 1439 1440 1441 1442 1443 1444 1445 1446 1447 1448 1449 1450 1451 1452 1453 1454 1455 1456 1457 1458 1459 1460 1461 1462 1463 1464 1465 1466 1467 1468 1469 1470 1471 1472 1473 1474 1475 1476 1477 1478 1479 1480 1481 1482 1483 1484 1485 1486 1487 1488 1489 1490 1491 1492 1493 1494 1495 1496 1497 1498 1499 1500 1501 1502 1503 1504 1505 1506 1507 1508 1509 1510 1511 1512 1513 1514 1515 1516 1517 1518 1519 1520 1521 1522 1523 1524 1525 1526 1527 1528 1529 1530 1531 1532 1533 1534 1535 1536 1537 1538 1539 1540 1541 1542 1543 1544 1545 1546 1547 1548 1549 1550 1551 1552 1553 1554 1555 1556 1557 1558 1559 1560 1561 1562 1563 1564 1565 1566 1567 1568 1569 1570 1571 1572 1573 1574 1575 1576 1577 1578 1579 1580 1581 1582 1583 1584 1585 1586 1587 1588 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 1600 1601 1602 1603 1604 1605 1606 1607 1608 1609 1610 1611 1612 1613 1614 1615 1616 1617 1618 1619 1620 1621 1622 1623 1624 1625 1626 1627 1628 1629 1630 1631 1632 1633 1634 1635 1636 1637 1638 1639 1640 1641 1642 1643 1644 1645 1646 1647 1648 1649 1650 1651 1652 1653 1654 1655 1656 1657 1658 1659 1660 1661 1662 1663 1664 1665 1666 1667 1668 1669 1670 1671 1672 1673 1674 1675 1676 1677 1678 1679 1680 1681 1682 1683 1684 1685 1686 1687 1688 1689 1690 1691 1692 1693 1694 1695 1696 1697 1698 1699 1700 1701 1702 1703 1704 1705 1706 1707 1708 1709 1710 1711 1712 1713 1714 1715 1716 1717 1718 1719 1720 1721 1722 1723 1724 1725 1726 1727 1728 1729 1730 1731 1732 1733 1734 1735 1736 1737 1738 1739 1740 1741 1742 1743 1744 1745 1746 1747 1748 1749 1750 1751 1752 1753 1754 1755 1756 1757 1758 1759 1760 1761 1762 1763 1764 1765 1766 1767 1768 1769 1770 1771 1772 1773 1774 1775 1776 1777 1778 1779 1780 1781 1782 1783 1784 1785 1786 1787 1788 1789 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1800 1801 1802 1803 1804 1805 1806 1807 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820 1821 1822 1823 1824 1825 1826 1827 1828 1829 1830 1831 1832 1833 1834 1835 1836 1837 1838 1839 1840 1841 1842 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 192

**DECK PACKS FOR SALE**  
 GREEN 3 1/2 x 5 1/2 INCH  
 100% COTTON, 100% COTTON  
 OFFER TO: J. H. PHILLIPS  
 HARRIS 91-000 5100

We have the best  
**Operators**  
long/short term  
minimum/less  
maximum cost  
**444444 2222**

Telephone Oxford 47787  
(24 hours) 01-404 6011  
For a quotation of rates

**SYSTEMS SERVICES**  
Including:

- Programming in Fortran, scientific languages, and numerical mathematics packages
- Microcomputer programming in engineering tools with user macro processor Simulink and Cmos Assembler
- Research into new solution methods for complex management problems
- Feasibility studies
- Independent package evaluation
- Special purpose statistical analysis

Telephones: Daxford 47787  
(24 hours: 01-404 8011)  
for a quotation of rates

If you donate your computer waste to us you will be making a valuable contribution to helping us care for over 5,000 children in need of love, care and security. Help bring happiness into their lives.

Please contact  
**Paul Harrison**  
**National Children's Home**  
**85 Highbury Park**  
**London, N6 1UD**  
**01-226 2033**

**SUPPORT SERVICES YOU KNOW YOU CAN RELY UPON**

KPG Ltd 28 THE BUTTS BRENTFORD MIDDYX 01-568 7345

**CONTRACT STAFF  
OPERATORS, DATA CONTROL  
KEYPUNCH PERSONNEL SUPPLIED**

★ Competitive Rates ★ Speedy Efficient Service

Tel: 01-248 6367

**COMPUVAC**



**GIVE US THE**  
 tools, food, clothing, housing — all  
 money, but all are involved in caring  
 children — and much more.  
 If you give us — not tools — but  
 complete caring, we'll be the last  
 caring for over 5,000 children in  
 need love, care and security.

**CAN YOU HELP?**  
 Please contact:  
 Paul Harrison  
 National Children's Home  
 88 Highgate Park  
 London, NW10 7LT  
 01-228 2030

**... we'll do the job.**

**FOUR** computer services limited  
**CONTRACT or PERMANENT—**  
ANALYSTS • PROGRAMMERS • OPERATORS  
PUNCH OPERATORS • DATA CONTROLLERS  
Tel. 01-467 5781 28A Oprethgth Street - London - W1

 **HEXAGON**  
computer services  
01-675-09-2571  
145 WARDOUR STREET LONDON W1V 3TB

**Contract & Permanent recruitment  
Total DP Support at its best  
Programming, Operation  
Data Preparation, Systems  
Data Control, Technical Support**







## REPORTS FROM HANOVER FAIR BY KEITH JONES AND MARTIN BANKS

## Suppliers seeking outlets in the UK

SYSTEMS suppliers at the Hanover Fair that told Computer Weekly they were seeking distributors for their products in the UK included the Stuttgart based systems house, David Datentechnik and the US based firm, Logical Machine Corp.

Both David Datentechnik, known as DDC, and Logical Machine Corp., known as Lomic, already sell directly or through distributors in most of Western Europe.

About 150 Adam systems have been sold in Europe to date and Lomic is setting up a directly owned German subsidiary based at Düsseldorf and a French subsidiary based in Paris.

Lomic's product plans include a smaller version of Adam called Tini.

The Stuttgart firm, DDC, which is aiming for a turnover of DM60 million this year, manufactures a family of three interactive screen based systems, the DD System 110, 220 and 440. The 110 is configured around a Motorola 6800 microprocessor and uses floppy disc storage, while the up and 440 machine comes with a Data General Nova 2 processor with up to 280 Megabytes on disc and up to 20 display terminals.

The 220, launched at Hanover, fits between the 110 and 440 in performance and is configured around DDC's own Nova compatible 16-bit processor made up of four 4-bit slices.



A VISITOR to Hanover Fair was the Duke of Kent who made a whistle-stop tour of the seven UK exhibits supported by the British Overseas Trade Board. He talked to firms on the joint stand sponsored by BOTS and the Business Equipment Trade Association, including Data Recording Equipment, the newly formed subsidiary of Data Recording Instruments.

The Duke, who is vice chairman of BOTS, is seen here discussing the DRE 3300 fixed disc drive with Ulrich Virkus, sales manager of DRE's German subsidiary, based in Munich. Experts accounted for 80% of the £18 million turnover chalked up by DRE in its 77/78 financial year which ended on March 31.

## A focal point for microsystems

THIS year's Hanover Fair turned into something of a European focal point for the microelectronics industry, with several manufacturers choosing it to launch new products.

Toshiba demonstrated its T400 personal computer system. It is not yet on sale, not even in Japan, and the two examples on the company's stand were both prototypes.

Almed primarily of a similar market to such equipment as the Apple II, the T400 comes with between 8K and 16K bytes of ROM, in which a Monitor and Basic software reside. The minimum 4K bytes of RAM can be expanded up to 48K bytes, to cope with colour graphics work.

Two versions of graphics are available, offering either a standard resolution of 63 by 40 or a high resolution of 256 by 160. Both have 16 selectable colours.

The T400 hardware package includes cassette interfaces of both 1200 baud and the Kansas City 300 baud standard, plus the option of a dot printer, floppy discs and an S-100 bus interface board.

Toshiba's agents in UK, International Office Products of Sunbury on Thames plan to market the system in about six months. No price has yet been settled, but Toshiba has quoted a US price of about \$1,000.

A small London company, Albid Electronics and Mechanical Products, showed a small business system based on the Motorola 6800.

Known as Superclerk, the system is intended to fill the need for what Albid calls "a modern filing system." By using a Burroughs plasma panel display, rather than a video terminal, the system provides a "docket" sized page format, aimed at stock control and production control application.

Superclerk costs £7,800, including operating software that controls the formatting of pages and their storage and recall from floppy disc. A total of 1,008 pages can be stored on each disc.

The new joint venture company formed by AMD and Siemens, Advanced Micro Computers, got its first exhibition airing since its formation. On show were two new single board computer systems that are among the first products to carry the AMC banner.

The first is the SKC-85 which is based on the Siemens version of the Intel 8085 processor, and comes complete with between 2K and 4K bytes of ROM and 512 bytes of RAM. It uses a standard

Eurocard board.

Eurocards are also used for the SMP80 range of boards. The main item is a CPU board incorporating the Siemens 8080 device, and the range includes RAM and ROM/EPROM expansion boards, together with serial I/O, parallel I/O Teletype interface and analogue I/O boards. These boards may be sold through AMC in the US, though they are on a Siemens bus structure.

National Semiconductor was also showing board systems at Hanover and introduced three additional single board computers into its BLC80 range. The additions, the 80/11, 80/12 and 80/14, are intended to plug a market gap between the 80/10 and the 80/20.

The 11, 12 and 14 variants add 1K, 2K or 4K of static RAM to the standard 80/10 system, respectively, while each is socketed for up to 8K bytes of EPROM in either 1K or 2K byte increments.

Intel showed its Series 2 version of the Intel microcomputer system. While still based on the 8080 processor, three system configurations are now available, starting with the 24K to 32K byte microcomputer, designated the 210. Next in the range is the 221, which adds to the microcomputer a 2000Z series terminal and a single floppy disc drive. The final variant is the 231, which adds a dual disc system capable of running both PLM 80 and Fortran 80 software.



Getting its first exhibition showing in Europe at Hanover Fair was the T400 personal computer system from Toshiba. It is scheduled to appear in the UK in about six months.

## NCC icma 'Charging for Computer Services'

Thursday, 15 June, 1978  
Mount Royal Hotel, London W1

The National Computing Centre and the Institute of Cost and Management Accountants are presenting this one-day seminar of interest to computer staff and accountants responsible for specifying costing and charging systems for computers.

General principles for internal charging and methods adopted will be discussed. Sessions include case studies of particular schemes within two commercial organisations and a local authority.

For further details contact:

D. C. Whidish, Esq.,  
The Institute of Cost and Management Accountants  
63 Portland Place, London W1N 4AB  
01-637 2311

## GRAPHWARE!

A major breakthrough that dramatically improves electrostatic plotter output from Visi-Tek Graphics.

## GRAPHWARE!

It is microprogrammed and automatically converts spread vector data into raster format - RESULT, a high quality plot at rates up to 4in per second versus typically slower speeds when rasterisation is performed in the computer's processor.

\* Efficient plotting - maximum plotter throughput. At least 2.1 reduction in plot costs.

\* Synchronous plotting on-line - accomplished in synchronous fashion at maximum machine speeds.

\* High quality plotting - features with speed optimising banding or 'grey bars'.

\* Reduced time and memory requirements - more CPU time and storage available for your plotting programmes.

Send for further details today.

QUALIFIED TO HELP YOU QUICKLY

EURO  
instruments

EURO Electronic Instruments Ltd  
Bentley House, 72 Camden  
London NW1 1PE  
Tel: 01-267 2346 and 01-267 5418  
Telex: 33222  
Agents:  
Bentley House, 72 Camden, E.C.1  
Tel: (Heron) 20577  
Telex: 31824 Europ

## DIARY

MAY 4

Software engineering seminars - 10am-5pm, structured 1 E. J. Dicks, Oxford University, Nuclear Physics Lecture Theatre, Kibble Road, Oxford, OX1 3DH. Details Dr J. S. Harris, 0865 58911.

MAY 8

Local computing from a regional bureau. BCS Medical London Group, ICL, Easton Road, London NW1 1BN. AGM/Falk, D. Finberg, RCS East Anglia branch, Anchor Hotel, Thorndon, 15.00.

MAY 8

How's it done on your site? - user case studies/AGM, BCS Operations Group, Polytechnic of Central London, 35 Marylebone Road, London NW1 1RN. AGM, RCS X-ray branch, St George's Hospital, Chesham, 18.30.

How to choose it, William Jacot, BCS New or Potential Users' Group, Royal Angus Hotel, Birmingham, 14.00. AGM, BCS Newcastle-upon-Tyne branch, Barras Bridge Bldg, Newcastle University, 19.00.

MAY 9-11

Eurocomp 78, Online, Conference Centre, Wembley.

MAY 10

The design of advertising brochures. Steve Shepherd, Tony Trivett, Association of Independent Computer Specialists, National Liberal Club, London SW1, 18.30.

The work of the SSKC computing committee. Alastair Chalmers, OCS Survey Analysis Group, Polytechnic of North London, London N7 17.30.

AGM, BCS Specialist Group for the Unemployed, ICL, Easton Road, London NW1, 18.30.

AGM/What can computer technology offer developing countries? OCS Kingston branch/Group for Developing Countries, Regional Management Centre, New Malden, 19.00.

AGM, BCS North Staffs branch, Crown Hotel, Stoke, 20.00.

AGM/Performance measurement. P. Semet, BCS Teesside branch, Teesside Polytechnic, Middlesbrough, 19.00.

AGM, BCS Edinburgh branch, Mountbatten Bldg, Heriot-Watt University, Edinburgh, 18.00.

MAY 11

Bionic Man, fact or fiction? Institution of Electrical and Electronics Technicians Engineers, Grand Hotel, Hanley, Stoke-on-Trent, 18.15.

Software engineering seminars - 10am-5pm, structured 1 E. J. Dicks, Oxford University, Nuclear Physics Lecture Theatre, Kibble Road, Oxford, 18.30.

MAY 11-12

Programming Group meeting, IBM Computer Users' Association, Royal Angus Hotel, Birmingham.

MAY 12

Open Day, CMC Users' Association (CUMAC), CMC Ltd, Hemel Hempstead (Herts), 10.30. Details: Maidenhead 24525.

## OP SPOT

## What kind of union for ops?

FOR several weeks now, operators from many sites have contacted me to discuss union membership.

Many feel that they need to belong to an organisation which will protect their interests, and I know of at least three installations where the operations staff are looking at various unions and considering what each has to offer.

The trend now seems to be swaying away from the concept of "an operators' union" and towards joining more established organisations.

This coincides with the advice given by union officials I have spoken to, who feel that an "operators' union" would not be strong enough to offer its members security and protection (Op Spot, March 2).

On that occasion, Ian Benson of Tass welcomed the fact that operators are becoming aware of the need to protect their interests, but said they should join a strong, established union and take an active role.

"I can understand their reacting in this way, but the problem is, they are unlikely to have sufficient numbers in terms of strength."

"In 1974 computer staff in Tass established local committees in London, Scotland and the Midlands and they are co-ordinated by a national committee. That is what I would advise staff to do if they feel they are not getting a fair deal. They should go to the local branch of their union and put a resolution

for an advisory committee to be set up."

According to Roy Grantham of Apex, "It is good that operations staff are thinking about getting organised, but they should consider joining a union like ours because we have been established for a long time and have finance and experience."

These opinions contrast with those expressed by operations staff when we had a phone-in on the Image of operations (Op Spot, February). Most seemed to feel operators should have their own union.

One said, "The only way operators will achieve any sort of recognition and make DPMs sit up and take notice is by setting up a national association or union, to control the standards concerning training, basic pay, shift allowance and job description."

It is evident that established unions have much to offer operations staff. They have considerable expertise in industrial matters and are extremely strong in terms of numbers and financial backing.

But they are unable to appreciate problems peculiar to the computer room, and operators complain of a void in the same area time and time again.

The GEC operators' claim has highlighted several vital issues which apply to many installations. John Hardie, a shift supervisor at the company's Stoke, Coventry site, where he is also the operators' union representative, pointed out a



number of problems faced by the staff (Op Spot, March 30).

Firstly, Hardie claimed that additions to the systems software called for greater technical awareness from the operators and increased their job responsibility.

Secondly, he said that the increased workload not only created extra console work, but also caused more paper handling, tape mounting and other ancillary work.

The situation of operators in general is made worse by the fact that at many sites they are not consulted about additions to the systems hardware. They are then expected to use the equipment as a normal part of their work. Also, it is clear that there is often no description of operators' duties.

Surely a properly organised operators' union or association could do much in establishing certain standards in these matters.

## Expanding Opcomm gets into leisure activities

TO cater for the growing interest in the Opcomm operations group a team of regional co-ordinators is to be set up. The first of these, Pete Lomas, who recently took up employment in Birmingham, is to arrange a series of meetings in that area.

At a meeting of Opcomm at the Lanchester Poly in Coventry newly appointed social secretary Pete Lomas was given the go-ahead to arrange a large social meeting for Coventry operations staff and friends.

He said: "As an operations organisation, I feel we could lift the veil in operators' sports and social life due to working shifts. Apart from the social function, I think we should go on to organise an indoor league specifically for local operations staff."

On the group's operational training project, a progress report was given by John McGinn, head of the working party carrying out the initial study on the matter.

Presenting a document on the subject he said, "The responsibilities of an organisation such as this should include the provision of training opportunities for operators of all degrees of ability. We have now produced a program for this."

He also suggested that a pool of "teacher operators" be set up to provide a body of knowledge to be used at established as well as new installations.

## HINT OF THE WEEK

## Page numbers also help

THE hint from Ron Linton relating to the listing of the George 2 Macrofla (Op Spot, April 6) has prompted a number of readers to write on the topic.

This week's hint on the subject comes from Derek Hower, a senior operator with McCorquodale Books, in Colchester. He writes:

"I noticed Ron Linton did not mention that you can use the slash (/) to put page or line numbers with the macro index names. This can be very useful when dealing with a large macro library."

In his example he uses the macro names given by Ron Linton:

0001 XPCK/*****	PAGE 1 ****
0002 ALGOL/*****	PAGE 2 ****
0003 XPJC/*****	PAGE 3 ****
0004 ACCOUNTS/*****	PAGE 4 ****
0005 EXP	
0006 MACDEF XPCK/*****	XPCK-1 ****
0200 MACDEF ACCOUNTS/*****	ACCOUNTS****

## Chorafas World Seminar 1978

THE DESIGN AND MANAGEMENT OF DATA COMMUNICATIONS; DISTRIBUTIVE SYSTEMS; TELEPROCESSING; PROTOCOLS; DATABASES; NEW TECHNOLOGIES AND THEIR APPLICATION; COST ADVANTAGES AND BENEFITS POSSIBLE FROM CLOSER LINKS BETWEEN COMPUTER AND MANAGEMENT OPERATION.

12-16 June COPENHAGEN Hotel Scandinavia  
18-23 June LONDON Excelsior

Other locations include Boston, Toronto, Paris, Rome and Frankfurt

Dr. Dimitris Chorafas, a Fulbright scholar, dynamic lecturer and former professor in major American universities is today the foremost authority in Europe with unique experience and knowledge in the realm of computers and data communications. This Seminar provides a prime opportunity to acquire in-depth insight into this rapidly growing field with special emphasis on decision criteria, cost benefit, and the administration of the human resources necessary to use data systems in a competent manner.

For full detailed information, send the coupon or write AIRMAIL to Education Enterprises, 26 Coniston Road, Blackpool, England FY4 2BY or phone (0253) 403016



Please send me full details of the Chorafas World Seminar 1978 to be held in (state location) as soon as possible.

NAME (please print)

ADDRESS

COMPANY

PHONE

## Microprocessor Development Systems-Workshop

Following the instant success of our recently introduced Microprocessor Design Workshops we are now pleased to announce further dates and venues.

15th-19th May at the Post House, Reading.

19th-23rd June at the National Computing Centre, Manchester.

17th-21st July at the Hertfordshire Moat House, Hemel Hempstead, St. Albans.

11th-15th September (provisional date) at Southampton.

The workshops will be fully educational using state-of-the-art development tools and approximately fifty per cent of the time will be conducted in a practical environment. For this reason each workshop will be limited to twelve persons only. They sell out fast so please take swift action to avoid disappointment.

The workshop is intended for the hardware designer who will be faced with the challenge of designing with microprocessors. It will concentrate on

the development of software and solving the problems faced when merging hardware and software into a complete design.

There will be four Tektronix 8002 microprocessor development lab systems at each venue, allowing for three delegates per system, which further emphasizes the practical nature of the workshop. The 8002 is the nearest one can get to a universal microprocessor design lab and is capable of emulating the 8080 and 8085, Z-80, 6800 and the TMS9900.

Upon completing this course the student will be able to:

1. Complete a software design from flowcharting through debugging.
2. Will be able to operate the Tektronix 8002 universal microprocessor development system.
3. He will be able to understand and solve the problems involved in integrating software and hardware in a real time environment.

The cost of the workshop will be only £220 plus VAT.

If you would like the complete programme and full details, please return

the reply slip or phone Harpenden 63141, Ext. 247. We would advise that if you are interested, you do this promptly, as we are confident the twelve places will soon be taken up.

In addition to full course notes, there will be considerable information given to each person attending the course.

**Tektronix**  
COMMITTED TO EXCELLENCE

Tektronix (UK) Ltd, 60 Garsington Road, Oxford, OX4 2DQ. Tel: 01865 206000

Please send me full details of Microprocessor Development Systems-Workshops

Name

Position

Company

Address

Telephone

To: Alan E. Huttley

Tektronix UK Ltd

FREEPOST

HARPENDEN

Herts

AL5 4BR

CW88

01865 206000



# Eurocomp78

## Congress theme to be Information Dynamics

THE theme of this year's European Computing Congress will be Information Dynamics, which is described as "the product of computer and communications technologies".

In addition to discussing the technical aspects of networks, distributed information systems, and databases, the Congress will spend considerable time dealing with the social and business impacts of Information Dynamics, user issues, regulations, and national computer policy.

Eurocomp 78, as it is called, will be held at Wembley Conference Centre from May 9 to 11. In addition to the conference, there will be an exhibition with

40 companies taking part. Among these will be Univac, GEC, Tektronix, and the UK Post Office.

There will also be presentations by a range of firms in one of the lecture theatres. A sizeable number of well-known names in the computer field are in the programme as speakers and session chairmen. Christopher Layton, director of science and technology at the EEC, will chair an international forum, the conference session on the Social Impact of Information Dynamics will be led by Chris Evans of the National Physical Laboratory, and a discussion on Computing Policy in the UK will include Reay Atkinson, director of the CCA, Martin Lam of the DoI, and the outspoken Gerry Fisher, former president of the BCS.

The conference will consist of formal sessions for the presentation of papers, some discussion sessions, and six Review Briefings, which will give an overview of some specific topics that are thought to be of critical interest to designers and users of information systems.

Topics for the Review Briefings are: Distributed Systems, chaired by David Hebditch, of Expertise International; Networks, chaired by Roger Scantlebury of Logica; Telecommunications, chaired by David Bayliss of Pactal; Word Processing, chaired by Sandy Douglas of LSE and the BCS WP working group; Regulation of International Data Flow, chaired by Russell Pipe, consultant to OECD; and Publicly Available Information Services (Prestal, Caefax, and Oracle) chaired by consultant David Butler.

There will be up to three conference sessions running at once, with the Review Briefings

making a fourth stream, one briefing each morning and afternoon for the three days. The conference sessions will also take up a morning or afternoon, with some shorter sessions and discussions in the early evenings.

The later part of the first evening will consist of a congress reception, and on the second evening, industry receptions.

Attendance at the conference will cost £195, including a copy of the proceedings, and lunches and other refreshments. A single Review Briefing, however, can be attended for £55, which includes the Review Briefing notes and refreshments for one day. The exhibition costs £2 at the door, but free tickets can be obtained from OnLine, Cleveland Road, Uxbridge UB8 2DD, which will also provide all other registration information.

Among the other topics of the conference sessions will be: The Data Communications User Viewpoint, presented by Inforex of France; Personnel Issues of Information Dynamics; sessions on general aspects and case studies of Distributed and Dispersed Systems; User/Terminal Interfaces; New Telecommunications Techniques, chaired by Martyn Roetter of Arthur D. Little; and Interfaces and Protocols.

There will be sessions on network design, central monitoring, and interconnection of networks, and plans for networks from the viewpoints of users and of PTTs.

Other open discussion meetings will cover Computer Systems in the Year 2000, and the implications to users of tariffs.

There will also be opportunity for delegates to act up discussions on topics of their own choosing at the time.

RORY JOHNSTON LOOKS AT THE PROGRAMME FOR THE EUROPEAN COMPUTING CONGRESS TO BE HELD AT WEMBLEY NEXT WEEK - AND AT SOME OF THE PERSONALITIES INVOLVED...



CHRISTOPHER LAYTON, director of science and technology at the EEC... to chair an international user forum.



DAVID BUTLER, a consultant... to chair a review briefing on publicly available information services.



GERRY FISHER, former president of the BCS... to discuss computing policy in the UK.

## Philips takes 80% stake in Canadian word processing firm

DUTCH giant Philips has taken a major stride in the competitive word processing market with the acquisition of about 80% of the Montreal-based company Micom.

Micom was set up by Steve Dorsey, former head of another word processing company, ABS, which ran into financial difficulties and was rescued by a number of investors, including the Canadian government. Built around the 8080 micro, has been a successful product in North America, that Philips intends to retain the Micom name for the floppy-disc-backed system there.

A UK agent is said to have taken orders for 98 systems, although none has yet been delivered.

In Europe, the Micom product will be launched as a complement to the Philips WP 5001, once it has been given a Philips house identity.

The machine will be housed in a Philips cabinet, fitted with Philips displays and an improved keyboard, and adapted so that the software meets European requirements. Among the attractive software options on the Micom system are a background arithmetic package which makes it possible to use it for all the standard business

applications like accounting and billing.

Latest figures for sales available are for 1976, when 300 Micom systems were sold. Philips' confidence in the company is underlined by its plan to quadruple the factory space in Montreal.

Philips' own product for the stand-alone word processor market is the magnetic card-based WP 5001, which is built around the Zilog 280 microprocessor. Since its launch last year, the WP 5001, which sells for a standard £7,850, has made significant inroads into the UK market.

## Tim Palmer previews Compec Europe, to be held in Brussels next week

# Industry's leading continental show for the systems builder

AFTER a tentative start two years ago, consolidated by a highly successful event in 1977, Compec Europe, which is sponsored by Computer Weekly, has become the industry's premier continental show for the systems builder.

Equipment from more than 100 manufacturers will be on display on some 80 stands at the Centre International Rogier in Brussels for three days, and the only problem for the diligent visitor will be finding time to examine everything on show.

Brussels, home of the European Ideal, opens its doors to the exhibition on May 9, and the exhibition will provide a showcase for the cream of Europe's hardware manufacturers, as well as all the major US minicomputer and OEM equipment suppliers.

Leading European mini-makers showing their latest offerings include SEMS of France, Ferranti of the UK, and Norsk Data of Norway.

SEMS will put the spotlight on the Solar 18/40 mini in a real-time environment.

Ferranti will demonstrate the power of the Argus 700 mini computer in an industrial and process control environment by running the Progress Management System software package.

Norsk Data will emphasise the scientific applications handled by the high-technology Norsk 10/S minicomputer which made its debut last year.

On the business front, Business Computers (Systems) Ltd of the UK will show its new Molecular Series IV processor. The company's earlier systems have found favour in France and Belgium, and BCS(L) will be seeking to extend its coverage.

The US minicomputer is out in force. Industry leader Digital Equipment will address both ends of the market, offering its powerful low-cost top-end machine, the PDP-11/80, alongside the LSI-11/2 microcomputer on a board for the cost-conscious system builder.

General Automation is a late but enthusiastic entrant to the business systems market with its DS-440 hardware-software package, and Harris will underline the virtues of the System 125 virtual memory computer system which runs under the multi-task multi-function Vulcan operating system.

With up to one Megaword of 350 nanosecond memory using 16K-bit chips, the new 2115A model processor in the HP-1000 family is understandably causing excitement at Hewlett-Packard, which claims that it is the fastest 18-bit mini in the business.

Modcomp also has a new entrant in the high-performance minicomputer stakes, the Classic 780. Six programming languages and the Total database management system make the Classic an attractive proposition for those requiring

versatility as well as power and performance.

Perkin-Elmer Data Systems is the home of Interdata, which will be showing selections from its 18 and 32-bit mini lines, while Systems Engineering Laboratories, SEL, specialises in 32-bit machine for simulation and other demanding scientific applications.

The new Texas Instruments package for the business system builder will get one of its first European outings at Compec Europe. Called the DS890 and configured around the T1-990 mini, the product marks TI's first major entry into the business market on its own account.

There can hardly be a stand at Compec not showing at least one piece of equipment incorporating a microprocessor and a wide range of overtly micro systems will be on show.

CMC Benelux will offer Europeans a first view of the new Sycor 445 terminal cluster, built around the Intel 8085 micro.

The MITS range of micro-computer systems will be on show at SA Fimeca NV.

Hawker Siddeley Dynamics is a name which the computer industry is certain to get to know in the future as the parent company diverts some of the cash it received from aircraft nationalisation into advanced technology. The company's offering at Compec is the Sequel micro-processor-based modular control and supervisory system.

Haywood Electronics will offer microcomputers based on the 8085, together with peripherals for the micro systems builder.

Intel is to display its new Intel 8088 16-bit microprocessor development system which includes resident assemblers for the 8048, 8080 and 8085.

Intel's strongest rival, Zilog, finds a home for its Z80 micro on the Helligraph stand.

Incaa will offer the Capro-1 microcomputer which is based on the Motorola 6800 and runs under a multitasking executive floppy-disc operating system.

Plenty for the micro systems builder will be found on the Rodelco stand, where items from Fairchild including the F8, the 9440 Microflame and the 6800 family will be exhibited.

Trivector Systems has done some clever engineering to assemble a powerful microcomputer system around three Z80A devices under the name Triton 3. The system has already found favour with a UK business computer company, and Trivector will be seeking similar business on the continent.

Vector International will feature a standard Eurocard, modules for the micro systems builder which are based on the Intel 8085. It also has an intriguing Unique Concept Terminal, again designed to use the 8085, and aimed at a range of applications which includes an

ologue data logging and monitoring, stand-alone cash register and point-of-sale terminal.

Such a brief tour of the mini and micro companies can give only a flavour of the enormous range of equipment which will be on offer. A glance at the classified section of the official catalogue reveals that every specialist sector of the industry will be amply represented.

Printers will be found on the Cifer, CMC, Data 100, DEC, Gamma, Logabox, Rochford Thompson, Transdata, Trend and Trivector stands.

VDUs will feature at Billing Machines, Cifer, Datacar, DEC,

Ferranti Cetec Graphics, Haywood Electronics, Lynwood Scientific, Regulation Measure, Tektronix and Terminal Display Systems stands.

People looking for discs and drives, tape units and floppy drives will find that Penny & Giles, Helligraph, Eurodata, MCR, Samson Computer Supplies and Norman Magnetics are among the companies ready to meet their requirements.

There will be plenty to attract the attention of the data communication specialist, and one stand which should not be missed is that of Modular Technology, the minicomputer company.



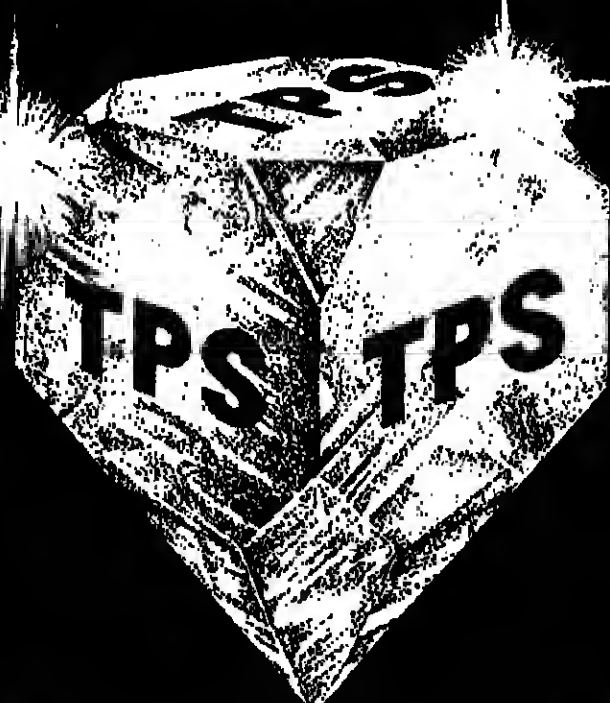
The Tektronix 4025 was launched in January, and Compec Europe will be one of its first public showings. Its powerful graphics and alpha-numeric are fully integrated and can be rolled and scrolled together. Easy-graphic software and a full range of peripherals are available.

## 45,000 at work on computers

A TOTAL of 35,000 people were employed in the manufacture of computers in England and Wales, and 9,000 in Scotland, in June, 1978, the Employment Under-Secretary, John Golding, told the Commons.

Replying to Gordon Wilson, (Scot Nat), Golding said that more up-to-date provisional estimates for Britain as a whole showed that the industry employed a total of 45,200 people in February, 1978.

## on show at Eurocomp... the brilliance of TPS



## the leading software gem for ICL computers

TPS has a variety of brilliant facets for all configurations, large or small. If you are considering the implementation of an online TP system then visit us at Eurocomp Stand 11 or telephone Lynden Roberts on Oxford 723621.

## TPS stand 11 Eurocomp

Telecomputing Ltd  
Seacourt Tower, Westway, Oxford OX2 0ED  
Tel: (0865) 723621 Telex: 837276

# X-DATA

## Equipment Wholesalers

24 Woodport Road, Brentford, Middlesex TW8 9BA. Tel: 0181 8913551  
Fax: 0181 8913551



CP210 prints Interimmed Pass-books and documents without operator equipment. Price: £11.95 (incl. VAT) £13.95 (excl. VAT)

## Package trips for CW

TWO low-cost package trips to Compec Europe have been arranged for Computer Weekly readers.

Tour A covers five nights, leaving London Heathrow at 17.40 on May 7 and returning at 16.40 on May 12 from Brussels at a cost of £171 or £185, depending on the hotel chosen.

Tour B is for two nights at a cost of £112 or £138, leaving at 09.25 on May 9 and returning at 18.25 on May 11.

For further details contact Commercial Travel Ltd, Carleton House, 8 Southampton Row, London WC1. Telephone: 01-408 5469. Telex: 21792/949.

## Success breeds success

First, our credentials. Our pedigree is first class. We've got proven hardware and software and a blue-chip user list. We've earned a reputation second to none in demanding areas such as science, research and industry. Many hundreds of our systems are in daily use throughout Europe. We are, in anybody's terms, a successful company. Now the message. Our tried and tested multi-access software has recently been extended to include functions which enable users to additionally specify GEC computer systems for commercial and business computing. So now a wider range of users may enjoy the same benefits.

Finally, the argument. Our experience in the demanding world of automation, information handling, communications and science is just as relevant to the world of commerce. The hardware components are the same. A substantial chunk of the software is the same. And we can show that meeting our customers' varied and exacting demands is something we take in our stride.

So you can now call us for commercial computing as well. Our UK Sales Manager is on 01-933 2030 ext. 3799, and our Export Office is ext. 3478.

# S&C

GEC Computers Limited  
Three Way, Borehamwood, Herts, WD6 1RX  
Telephone: 01-933 2030 Telex: 22777  
Cable: The General Electric Company Limited of England











RECRUITMENT SERVICES SYSTEMS AND PROGRAMMING

TRAINING OPPORTUNITIES FOR EXPERIENCED PROGRAMMERS

- \* MINIMUM 12 MONTHS' EXPERIENCE
- \* WIDEN YOUR COMPUTER KNOWLEDGE
- \* PROGRESS TO ANALYSIS AND PROJECT RESPONSIBILITY
- \* LEARN NEW TECHNIQUES — TELEPROCESSING, DATABASE, ETC.
- \* LEARN NEW LANGUAGES, NEW COMPUTERS
- \* INCREASED EARNING POTENTIAL

CHIEF PROGRAMMER

**HANTS**  
Our client is a major British company with business interests in many areas. Retaining IBM 370/158 and using mainly PL/I, they seek chief programmer with demonstrated programming exp. Co. offers:  
\* Responsibility for program team  
\* Wide range of projects  
\* Secure future  
\* Flexi hours, Annual Bonus  
\* Salary to £7,000  
Ref. 1438

IBM PROGRAMMERS

**LONDON**  
Multi national company retaining large IBM 370 equipment requires programmers with at least 18 months' Assembler experience to join highly professional team. They are currently developing a major sophisticated on-line system. Co. offers:  
\* Highly progressive organisation  
\* Continued development with a well planned schedule  
\* Good promotional prospects  
\* Excellent benefits including cheap travel  
\* Salary to £8,000  
Ref. 1280

SENIOR PROGRAMMERS IBM

**MIDDLESEX**  
Make a career move and join this progressive national company based in Middlesex. Due to continued expansion they are seeking senior programmers with initiative and ability to lead a strong team. They have openings for IBM COBOL or RPG II experience. Co. offers:  
\* Training in CICS and OL/I  
\* A chance to progress successfully in well-established division  
\* Extremely interesting work  
\* Promotion on merit  
\* Good Company benefits  
\* Salary to £7,000  
Ref. 1431

IBM PROGRAMMERS

**SOMERSET**  
Challenging opportunities exist for COBOL programmers with preferably ASSEMBLER, at all levels, to work on a variety of projects. Co. can offer:  
\* Excellent working conditions  
\* Wide range of projects  
\* Training in OL/I  
\* Relocation expenses  
\* Bonus and productivity scheme  
\* Subsidised restaurant and sports and social club  
\* Salary up to £5,200  
Ref. 1442

JUNIOR PROGS

**CITY/SE**  
A challenging career awaits you if you have experience on any IBM high level language to join a highly successful team within leading national organisation with IBM 370 hardware. Co. offers:  
\* Training in PL/I  
\* Loan Database & T.P.  
\* Room for growth and promotion  
\* Development of new projects  
\* Salary £4,500  
Ref. 1150

PL/I PROG

**KENT**  
Why travel to London when opportunities like this exist? PL/I Programmer, this well-known national company with large IBM 370 equipment can offer you:  
\* Security in a very well-established and highly organised O.P. division  
\* Training in IMS  
\* Prospects for systems  
\* Salary £4,800  
Ref. 1215

IBM ANALYST/PROGRAMMERS

**SURREY**  
Opportunities in a local area. Rapidly expanding company seeks COBOL analyst programmers. This large concern with large IBM equipment in a commercial and financial environment can offer:  
\* Excellent promotional prospects  
\* A variety of new development work  
\* Free BUPA and flexitime  
\* Salary £5,000 (neg)  
Ref. 1352

IBM ANALYSIS PROGRAMMER

**LONDON**  
If you have 2 1/2 years' IBM COBOL experience apply now for this fantastic opportunity. Co. offers:  
\* Travelling to Europe, Middle East and Africa  
\* Installing designing and the development of new programs  
\* 1st Class travel and accommodation  
\* Long Term Career prospects  
\* Excellent company benefits  
Ref. 1488

SNR ANALYST/PROG

**ESSEX**  
Communications company working on a global scale seeks clear, logical thinking analyst programmer for their ICL 1900/2900 Series equipment. Co. can offer:  
\* Control of small development or support projects  
\* Supervisory experience  
\* Full scale of projects ranging from purchasing to financial modelling  
\* Subsidised restaurant/sports and social club  
\* Salary £5,500  
Ref. 1153

HONEYWELL PROGS

**LONDON**  
The success rate of this large manufacturing company has led to the need for additional analyst programmers. The right applicant will join a professional and enthusiastic team utilising Honeywell mainframe and preferably had OS 2000 experience. Co. offers:  
\* Training in IMS BOMP  
\* Opportunities for using MINIS in near future  
\* Cheap Company Products  
\* Plush modern offices  
\* FREE restaurant/4 weeks' holiday  
\* Salary to £8,000  
Ref. 1412

MINI PROGRAMMERS

**LONDON**  
World wide organisation are recruiting people with any MINI ASSEMBLER experience for OEC POP installation. Co. offers:  
\* Extensive training in up-to-date technology  
\* Excellent career opportunities  
\* Training in RSX, RTII and RSTS  
\* Salary £8,000  
Ref. 1087

JUNIOR PROG

**HOLLAND**  
Very rare opportunity for ambitious person wanting to work overseas. If you have initiative, good education and approx. 6 months' COBOL, PL/I or experience of other languages than ring NOWVI Co. offers:  
\* Excellent training within world-wide organisation using modern technology  
\* Responsibility for maintenance but will move into development roles  
\* Centrally based - Amsterdam  
\* English speaking country  
\* Salary 35,000 guilders (FR. 750) per mo.  
Ref. 1448

BURROUGHS PROGRAMMERS

**LONDON**  
Challenging opportunities exist for COBOL programmers at all levels for B3700 hardware. This well-established company has opportunities for programmers with initiative and drive for their installations in central London and Surrey. Co. offers:  
\* Excellent working environment  
\* Excellent career opportunities  
\* Opportunities to go on to management  
\* Flexi time, free restaurant and bonus  
\* Salary to £5,000  
Ref. 1357

NCR PROGRAMMERS

**LONDON**  
Our client, an international company covering a large range of NCR mainframes and minis are seeking COBOL programmers at all levels. They are involved in a variety of commercial, financial and industrial projects. Co. offers:  
\* Training opportunities for IBM, ICL or JNT-VAC COBOL progs.  
\* Extensive training on new machines  
\* Career development in systems  
\* Excellent company benefits  
\* Salary to £5,500  
Ref. 1327

TRAINEE MINI PROGRAMMER

**LONDON**  
Company requires experienced programmer to work on systems support group. If you have 2 years' COBOL experience under IBM ODS they will train on POP-11 CORAL and they have opportunities to become involved in ANALYSIS. Co. offers:  
\* Excellent promotional prospects  
\* 4 weeks' holidays, STLS, BUPA  
\* Subsidised restaurant and company shop  
\* Salary £5,500  
Ref. 1480

PL/I PROG

**HOLLAND**  
Our client a major and successful concern, wishes to strengthen its European programming team. Retaining IBM 370 hardware under DOS/VSE, the Co. seeks ambitious persons with PL/I experience and OL/I, CICS, or COBOL being an asset. Co. offers:  
\* Involvement in development of new and exciting projects  
\* Opportunity to work with an expanding organisation operating world-wide  
\* Centrally based - AMSTERDAM  
\* Salary 40,000 guilders (£10,000) cost of living allowance and relocation expenses  
Ref. 1212

Why not find out what is available in your area?  
This is only a small selection of posts we have available at present. If however, you don't see anything to suit your requirements please do not hesitate to telephone us. We have a wide choice of jobs at varying levels throughout the U.K.  
For the above positions — please telephone 01-734 0152/3010 (24 hours) quoting the respective reference number, or write to our London office.

CONTRACT N. ENGLAND + MIDLANDS

IBM MK. IV PROGRAMMER	6 Months N. England	£220 PW
IBM MK IV.A/PROGRAMMER	6 Months Midlands	£220 PW
IBM CICS COBOL	6 Months N. England	£250 PW
IBM CICS ASSEMBLER	1 Year N.W. England	£230 PW
IMS DESIGNERS	1 Year N. England	£250 PW
IBM TOTAL DATABASE PROGS	6 Months Sheffield	£230 PW
ICL Total Database Progs	6 Months Sheffield	£230 PW
CORAL 86	1 Year N. England	£215 PW

Rates are reviewable and contracts renewable. Telephone: Barry Butler or Malena Fawkes, 081-833 8341/3, 620 Royal Exchange, Manchester.

KNIGHT PROGRAMMING SUPPORT LIMITED

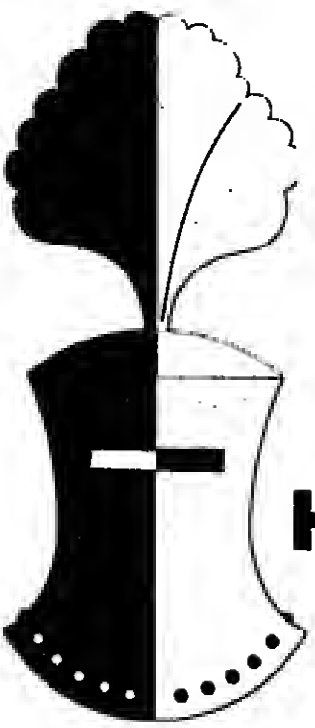
27 NOEL STREET, LONDON W1 TELEPHONE: 01-734 0152/6 (24 HOURS)  
OFFICES: AMSTERDAM, PARIS, MANCHESTER

CONTRACTS: SOUTH ENGLAND & OVERSEAS

MANY CONTRACTS ALL MACHINES!!! PLEASE CONTACT

IBM PL/I DDS Learn Librarian Easitrieve  
IBM PL/I DDS Commercial Application  
IBM PLII CICS  
IBM 370 DC/DB  
IBM PLII DDS. VS. Long Contract.  
IBM DOS Total D/Base  
IBM CDBDL ISP  
IBM SYST 3/370 CDBDL  
BURROUGHS 3700 or 1700 CDBDL Gen. Ladger  
NCR 299 399 499 COBOL  
NCR 399 Financial Applications URGENT  
DATA General Nova COBOL  
POP RSX 11D Macro 11 Exp. of APS4  
POP B. Solve Software problems  
ICL 1900 Plan Driver  
Project Leader IBM PL I DOS  
Burroughs 6700/7700 CDBDL

London £200 + pw  
Surrey £200  
London £210 +  
Herts £240  
Paris £275  
Paris £ Ex Rate  
Paris £ Ex Rate  
Brussels £ Ex Rate  
Sussex £200 + pw  
Saudi Arabia £300\* pw. acc + exp.  
City £190 + pw  
City £200 pw  
Essex £250 pw  
Herts £230 pw  
Herts £200 + pw  
Paris £350 pw  
Surrey £220 pw



Telephone: Dave Hayton or Christine Kay

KNIGHT PROGRAMMING SUPPORT LIMITED

27 NOEL STREET, LONDON W1 TELEPHONE: 01-734 0152/6 (24 HOURS)  
OFFICES: AMSTERDAM, PARIS, MANCHESTER



MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

SENIOR SYSTEMS ANALYSTS PRODUCTION CONTROL

EAST LONDON To £8500

A major manufacturing organisation with impressive worldwide export achievement records is currently expanding their data processing function and wish to augment their team with an experienced Analyst.

The company operate an IBM 370/138 installation with a tele-processing network. Production systems access a database and this is an area that is certain to be expanded.

An Analyst, with experience of computerised production control is required. The position may also interest those currently employed in the user area who would be interested in using their technical expertise in the computer industry.

The successful candidate will be responsible for the further development of the company's production control systems. This will probably involve requirements planning and capacity planning in the short term and may well extend to cover mini-based shop floor data collection in the future.

The company offer an excellent package of benefits and generous relocation expenses are available.

24-hour answering service.  
Please telephone for a confidential discussion or write to:  
30 Fleet Street, London EC4A 1AA  
01-353 9981

UNIVERSITY OF SOUTHAMPTON

Senior Experimental Officer

Applications are invited for the post in the Computer Studies Group to be responsible for the running of the Computer Studies Teaching Laboratory currently equipped with POP-11/34, 11/40 and ISM-11 Computers, and laboratory to other machine. In addition to supervising the day-to-day activities of the Laboratory the person appointed will be responsible for the maintenance and administration of the equipment. Experience of microcomputers and their software is essential, and a degree in Computer Science or equivalent professional experience is desirable. Facilities with POP-11 software and/or UNIX will be an added advantage. Salary within range £3880-£6178. Initial salary according to qualifications and experience. US\$ benefits. Applications to: A. C. P. Roberts, University, Southampton SO9 5NH.

CAPITAL APPLS.

FORTRAN PROGRAMMERS

Highly motivated for industrial and scientific development. 13 years exp. ALL AREAS. Telephone for free trial of FORTRAN.

01755 557444, 016 9659 000

LECTURER I IN COMPUTING STATISTICS AND MATHEMATICS

A graduate qualified teacher is required for 1st September, 1978 to teach the range of subjects up to OCE 'A' and O.C. Level. A knowledge of the application of these subjects in business would be an added advantage. Applications, forms, returnable by 15th May, 1978 and covering particulars should be sent to the Director of Education, telephone Chippingwood 50911 ext 10.

Operator Winsford, Cheshire

We have a new opening for a 1900/2900 Operator to join a small team working 3 shifts at our Winsford Manufacturing Plant. The installation, which is in the process of being commissioned, consists of a 2904 and twin 7503 RIE terminals linked to twin 1903S mainframes in Slavenage.

The Corporate Systems staff at Winsford provide a complete management information and data processing service to the site. The operator will form a particularly important link in this service. We wish to recruit a person with at least two years' operating experience, who has knowledge of GEORGE 1 and is capable of developing their career into job control. This is the ideal opportunity for someone with ambition to enter this successful company at a time and point for maximum career progression. Relocation assistance is available where appropriate. For further details and an application form please contact Barry Kilson, Corporate Systems Personnel Department, ICL, Wendrick Way, West Gorton, Manchester, quoting reference CW1817. Or phone 061-223 1301 ext 2645.

International Computers

think computers - think ICL



IBM SYSTEM 3/10 OPERATOR

WANTED WITH MINIMUM EXPERIENCE ON SYSTEM 3 OF 12 MONTHS.

MUST BE PREPARED TO WORK FLEXIBLE HOURS AND OVERTIME. AS THIS IS NOT A 9-5 JOB. OPPORTUNITY AND TRAINING WILL BE GIVEN TO ACQUIRE A KNOWLEDGE OF RPG II, WITH SUBSEQUENT PROMOTION TO OPERATOR/PROGRAMMER.

OFFICES SITUATED NEAR OXFORD CIRCUS.

£3,500 p.w. AND OVERTIME 3 WEEKS' HOLIDAY

PHONE AFTER NOON. GRAHAM LANGLEY, WARNER AND SONS LTD. 01-439 2411

UNIVERSITY OF MANCHESTER DEPARTMENT OF CHEMISTRY

POST DOCTORAL RESEARCH

post to work on molecular collision theory. A background in molecular collision theory would be advantageous but is not essential. The appointment is for one year in the first instance. Salary within the range £3,880-£6,180 per annum. Superannuation. Applications with curriculum vitae and names of two referees by June 30th, to Dr. J. M. L. Connor, Department of Chemistry, The University, Manchester M13 9PL, England.

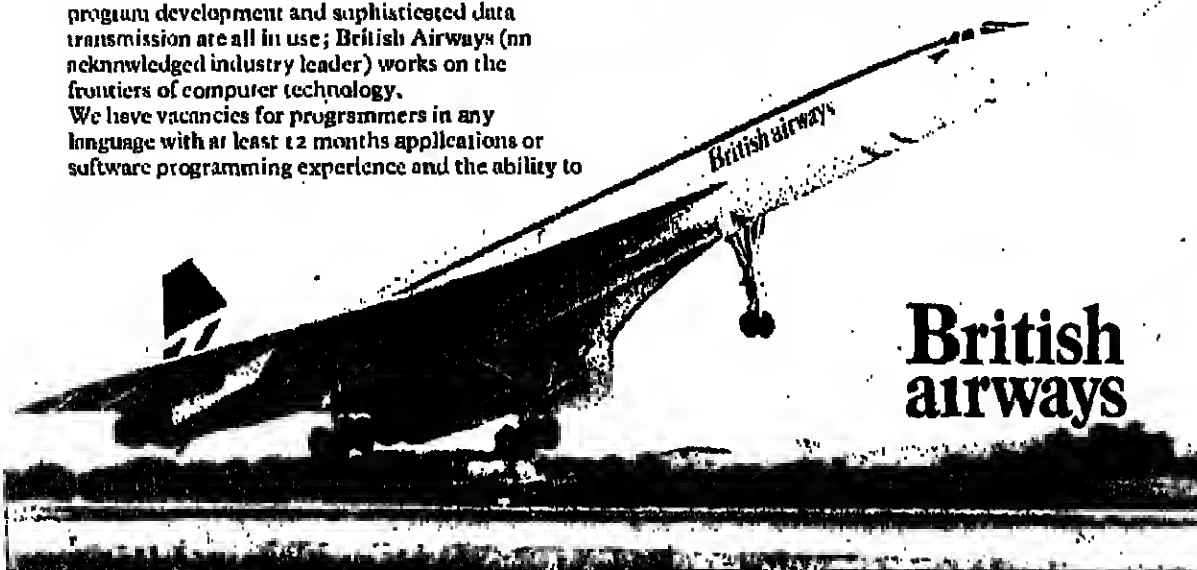


# Could you program for Concorde?

It takes some pretty sophisticated programming to ensure a smooth flight for the world's fastest passenger plane. Concorde's ability to span the globe in a matter of hours, together with its totally different technology, poses new problems in provisioning spare parts, flight planning and in maintenance control. But these are all part of a vast range of computer activities supporting every British Airways take-off and landing worldwide. In 1978 we plan to carry 16 million passengers on 200 aircraft to 45 air 200 destinations. Translate those figures into computer systems requirements and you will have some idea of how important programmes are to a major international airline. We use IBM and ICL mainframes and a variety of mini computers hooked up in a communications network supporting over 3000 terminals in over 150 countries.

As new equipment and techniques become available the scope and depth of our computer support is continually expanding. Real time programming, on line databases, interactive program development and sophisticated data transmission are all in use; British Airways (an acknowledged industry leader) works on the frontiers of computer technology. We have vacancies for programmers in any language with at least 12 months applications or software programming experience and the ability to

hold a place in a really dynamic computer environment. Starting salaries of up to £4500 are now being offered. Promotion can lead to more senior positions up to £7200 and beyond. Benefits include extensive sports and social facilities and favourable holiday air travel opportunities. When you plan a career with British Airways you are guaranteeing yourself a stimulating future. Now you know what is in the air, get in touch. Drop in for an informal chat with one of our Project Managers at The London Interviewing Centre, Knightway House, 20 Soho Square, London W.1. (close to Tottenham Court Road Tube Station) on Wednesday 10th May or Thursday 11th May between 10.00 and 2.00 hours. or Call 01-897 3246/7 for an early interview or Write today to: Head of Recruitment & Selection, British Airways (815/CW/MK), P.O. Box 10 Heathrow Airport—London, HOUNSLOW TW6 2JA



## We've got some good news for an Operations Manager. And we've got some bad news.

The good news is that Europe's fastest growing retail company is installing a large computer system—a PDP 11/34 linked to an 11/45 operating under RSX11—and that we're looking for a resourceful and ambitious man or woman to shape the entire future of data processing operations within our organisation. A future which includes the establishment of a nationwide tele-processing network comprising some 200 terminals.

The bad news is that we want to go live through at least 60 stores within the next 6 months. Which will mean motivating and organising a 7-day week operations cover as soon as you get here, and maintaining it throughout the initial stages.

Mind you, if you're the type who likes job interest and involvement, that will read more like good news because it will convince you of our commitment to computerisation, and give you some indication of the career opportunity open to you.

As an in-house expert, your growth rate should be as spectacular as ours (we're currently opening 12 new stores a year).

And the good news continues. A salary

of around £6,500 will be supplemented by a 1600 cc car and expenses—not to mention a range of benefits which includes free life assurance, a contributory pension scheme, LV and a generous staff discount facility. You will be Wembley-based (relocation assistance will be provided where appropriate) but your need to maintain close contact with your users once the system is in and running will necessitate some UK travel.

If all this sounds good to you—and provided you can bring us a high degree of technical proficiency supported by telecommunications experience ideally with digital equipment—please write, with full details, to: Mr J. T. Beer, MFI Furniture Centres Ltd, New Stadium Works, North End Road, Wembley, Middlesex. Or phone him on: 01-903 1366.



Your friend in the furniture business.

### UNIVERSITY OF SOUTHAMPTON

Institute of Sound and Vibration Research

Applications are invited for the post of

#### MANAGER

for the Data Analysis Service in the Institute of Sound and Vibration Research. Candidates should have experience in the operation of mini computers for the analysis of time varying signals.

Salary scale £3860-£6178 or £5954 to £7038 per annum. Initial salary will depend on qualifications and experience. Further particulars may be obtained from D. A. B. Copland, The University, Southampton SO9 0NH, to whom applications should be sent not later than 30 May, 1978. Please quote reference 388/A/CW.

#### CONTRACT PROGRAMMER

RPG-11, W. LONDON TOP RATES

X-Cellular Computer Services 47 Essex Street, WC2 01-388 8261

### Systems Analyst RPG 11 Programmer £5,000 + Company Car

We are a progressive £30m private building group operating in the London and South East. We require an experienced person to act as deputy to the computer manager in developing new systems and maintaining the many existing systems on our IBM System 3/15A. We are looking for a person aged 25-35 with some years' RPG 11 programming experience in commercial systems work using a System 3. He/she will have a practical mature approach and be able to communicate with all levels of users and to make quick accurate decisions as required.

Our Head Office is situated in a pleasant rural part of Surrey near the North Downs, easily reached by the M25/M23. A salary of £5,000 + company car is offered plus usual fringe benefits.

Applications to address below or telephone Caterham 48484, Graham Turner Ext. 207. Croudace Limited, Croudace House, Caterham, Surrey.



COMPUTER PERSONNEL APPOINTMENTS LTD.  
Career Specialists and Consultants for  
**D.P. MANAGERS, SYSTEMS ANALYSTS,  
PROGRAMMERS AND OPERATORS**  
Midlands, Northern Counties and Scotland  
For application forms apply to:  
66 New Street, Birmingham B2 4DU. 021-843 0951  
or Tel 01-723 5334

CAPITAL APPTS.  
GRADUATES  
Specialist recruitment for various positions in:  
Scientific Industrial Commercial  
Situations Salaries £1000  
ALL AREAS  
021-5557/491/518 9659 etc

## DATA PROCESSING CAREERS IN CANADA

If you are looking for a challenging opportunity in a new country, we have a career for you. We utilise state-of-the-art hardware and software such as IBM System 370 multiprocessors running MVS/JES2, use the most current of structured development technologies, and have a high concentration of new development activity. In addition to competitive salaries, we offer attractive employer benefits such as profit sharing, medical plans, merchandise discounts, and relocation assistance.

We are Canada's largest general merchandise retailer, with an annual sales volume in excess of two billion dollars. We operate over sixty retail stores, catalogue centres, distribution centres and over seven hundred sales offices located from coast to coast. Our data processing expansion programme has created the following openings in our head office, located in Toronto.

### PL1 PROGRAMMERS

Applicants must have a minimum of three years PL1 experience, and have developed strong technical skills and be able to work effectively as a Development team leader. Experience with CICS, System 2000 or other data base management systems is a definite asset. Our team development approach demands good interpersonal skills, demonstrable leadership capabilities and a thorough understanding of structured techniques.

Salary range \$19,000.00 to \$22,000.00 per annum.  
Approx. \$5,985 to \$10,375 p.a.

### SYSTEMS PROGRAMMERS

Applicants should have at least three years experience in developing and supporting the system software and hardware in a large-scale MVS installation. A detailed understanding of the internals of at least one of MVS, JES2, CICS, System 2000 or PL1 is mandatory. Supervisory experience is a definite asset.

Salary range \$19,000.00 to \$23,000.00 per annum.  
Approx. \$5,985 to \$10,850 p.a.

Successful applicants will normally possess an applicable degree from a recognised university or equivalent qualification, and have a proven record of job ability.

Personal interviews with a Senior Company Representative will be arranged in London commencing May 8th. Interested candidates are requested to submit immediately in confidence a detailed resume to:

Sears  
SIMPSON'S SEARS LIMITED

Simpson's-Sears Ltd.,  
Dept. 450,  
Government of Ontario,  
Selective Placement Services,  
13 Charles St., London SW1Y 4QS.

# ANGLIAN D.P. SERVICES LTD

## COMPUTER PROFESSIONALS EAST ANGLIA HAS A WEALTH OF JOBS- FIND YOURS BY COMPLETING THE FORM BELOW

Surname \_\_\_\_\_ Forenames \_\_\_\_\_

Address \_\_\_\_\_

Home telephone number \_\_\_\_\_ Office telephone number \_\_\_\_\_

(To be used with discretion)

NOTE TO APPLICANTS:- The information contained herein will be regarded as confidential and will not be divulged to anyone without your prior consent. Neither will we approach present or previous employers without your consent.

Locations: (i) desired \_\_\_\_\_ (ii) considered \_\_\_\_\_

Sex \_\_\_\_\_ Marital Status \_\_\_\_\_ No. of children \_\_\_\_\_

Age \_\_\_\_\_ Date of birth \_\_\_\_\_ Place of birth \_\_\_\_\_

Nationality now \_\_\_\_\_ Nationality at birth \_\_\_\_\_

Current driving licence? \_\_\_\_\_ Own car? \_\_\_\_\_ State of health \_\_\_\_\_

Present position \_\_\_\_\_ Salary \_\_\_\_\_

Position sought \_\_\_\_\_ Salary required \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

### EDUCATION (including part-time study)

Dates \_\_\_\_\_ Qualifications \_\_\_\_\_

\_\_\_\_\_ FIRST FOLD BACK

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ SECOND FOLD BACK

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

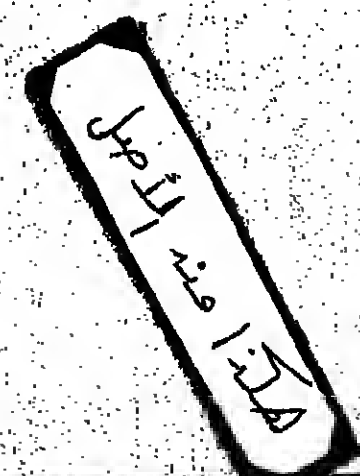
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



THIRD FOLD BACK

ANGLIAN  
D.P. SERVICES LTD  
FREEPOST  
Danbury  
CHELMSFORD  
CM3 4BR

FOURTH FOLD BACK AND  
TUCK IN

Anglian D.P. Services Ltd  
Stratford House  
Maldon Road  
Danbury  
Chelmsford CM3 4QW  
Telephone: Danbury  
(STD 024541) 4255







## Project Managers

North London

Continued expansion and development within our clients organisation has created vacancies for capable, self-motivated project people to join its management team. Teams tend to be small but highly effective with total responsibility for design implementation and support of major applications. Specific experience of accounting or marketing systems will be considered an advantage as is a proven track record in project management. These are key appointments within a major bureau, therefore salaries will reflect the importance of the posts. Subsequent career development is dependant on the individuals ability. Contact: Margaret Stevens

## Sales Executive

Sheffield-Locater Area

c. £7,000 + commission + car  
A well established and successful manufacturer of mini-computer systems, designed for the commercial and end-user market, seek to increase their remarkably effective sales team in the north. Applicants must have a proven track record either in the sale of similar equipment or in a support type position. In any event, the successful candidate will be one who is dynamic, self-starting, and with a sound d.p. background.

Contact: Mike Creamer

## Programmer/Analyst

South Essex

Our Client is a well established manufacturing company with an expanding world-wide market. Due to this expansion, we now wish to recruit a programmer/analyst with 18 months+ O.S. COBOL experience. Experience in BOMP or FINANCIAL applications would be an asset. However, training will be given whenever needed. In addition to a chance to get involved in analytical design work, we give self-motivated D.P. professionals a progressive career path. The company also offers, re-location assistance, where applicable, a subsidised canteen, and an excellent pension scheme.

Contact: Mike Creamer

For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.  
**JAMES BAKER ASSOCIATES, International Personnel Consultants**  
16 Maddox Street, London W.1. Tel: 01-491 4478

## Technical Author/ Software Specialist

Berks

A leading, innovative consultancy seek a team person to document operating system software. Solid experience of operating system design (internals) or programming is essential. The successful candidate will determine own future and development of career in this unique job opportunity.

Contact: Jim Baker

## Programmer Analyst

Bucks

A rapidly expanding commodity production company are seeking a programmer analyst to manage their data processing activities, ranging from development of new systems, to total responsibility for a small team. The applications will be commercial and financial involving absolute liaison with all sectors of the company. Applicants must be thoroughly conversant with commercial and/or financial systems, preferably on mini-computers, ideally PD/PSTs, and have strong leadership qualities. Excellent salary and benefits coupled with management status.

Contact: Mike Creamer

## AUSTRALIA

We heard this week that another group of d.p. emigrants have been successfully placed by our associate company in Sydney, within a short time after arrival. In fact, several of them, find two or three offers from which to choose.

If you are a d.p. professional (a.g. programmer, analyst, computer engineer, or more senior grade) with over three years experience and the determination to start a new life in Australia - JBA is your vital link to that important job you need when you get there. Work all the ground work for you and open up the contacts so that interviews can be arranged as soon as you arrive.

Contact Mike Creamer and have a chat about how JBA can help

**Mini Experience? U.K.  
Pioneering Interests?  
Eager to Prove Your Ability?**

## KRATOS

Intercom Limited - Stone, North Staffs

**Programmers to Project  
Leaders £3500-£6000**  
Process Control and  
Technical Development  
Project Staff -  
North Midlands

A wide variety of development support staff from Junior Programmers to Project Leaders, are required to work on a wide variety of micro processor and mini computer based systems for industrial and laboratory automation applications world-wide. Applicants should preferably be graduates. Experience of Minis in a real time or on line environment will be beneficial. Machines of particular interest to us are DEC, Data General, Intel etc, using ASSEMBLER or FORTRAN. Equally any RSX experience would be particularly attractive. Please telephone urgently either Mrs Hilary Prosser on Stone 832131, or Don Philp on 0782 823665.

Hilary Prosser  
Intercom Ltd.  
Mount Rd., Industrial  
Est.  
Stone  
Staffs ST15 8LX  
Stone 2131 (0785 83)

Don Philp  
EMS Group  
0782-823665

Consultants: John Wood and Don Philp

## Kuwait - EMS & Inter-Consult

**The opportunities you've  
all been waiting for!**

Kuwait's own leading Consultancy bring you 90% of the opportunities available in Kuwait today

## Project Leaders to £15000 + Accom

We seek Senior Analysts, capable of team control, whilst at the same time handling personal project work. All candidates must have a minimum of 3 years' IBM experience with at least 2 years' OOS COBOL programming. Applications are mainly for Accounting and Inventory Controls and other commercial systems. Candidates should be educated to a minimum HNO standard and have no children. A driving licence would be especially advantageous. Motivated, career conscious managerial level candidates are assured of excellent employment prospects. We intend carrying out early interviews for these positions. Please telephone today for an application form.

## Analysts & Programmers - Numerous Banks to £12000

Hardware requirements vary mainly between IBM and NCR with languages being COBOL, ASSEMBLER and the occasional use of NATS. Any CICS experience would be especially useful. Kuwait at present has both new development work with first-time computer users at a wide number of banks, to established users initiating large increased on-line project development. Equally, junior positions are also available for commercially experienced staff with 18 months' or more experience. Telephone today for application forms.

## O&M Consultants/Microfilming c £11000

Ability to set up a microfilming unit, organising the hiring of preparation staff and training them where necessary, as well as undertaking user feasibility study and implementation. The job will be autonomous from the main consultancy group, necessitating a sound microfilming knowledge with the ability to make correct under-standings after the unit is operating effectively, therefore offering a good progressive career opportunity.

## Arab Nationals - Banking

Preference will be for candidates with a recognised qualification, from HNO upwards. Banking experience would be particularly useful, especially in an on-line environment. Young Analysts/Programmers are being sought in addition, particularly with PDP experience. Arab Nationals with alternative machine experience will equally be considered. Senior staff will work with Consultants currently developing a computerised system and will help during installation, gaining relevant experience as well as ultimately take over project management functions.

## CMC Programmers - Negotiable

A newly formed Turkey Systems Group in Kuwait need experienced CMC programming staff, preferably with basic systems knowledge to rapidly assist with the design and programming of client application systems. Ability to train other group staff in CMC Programming specialties would be especially advantageous. A driving licence will be essential. Candidates can be single or married, but must have no children. The company has already gained early sales and now seeks motivated staff to help them increase their marketing successes and to expand the group.

## IBM Analysts & Programmers to £12000

One of the largest trading groups in the Middle East has additional vacancies for experienced IBM development staff to assist with the maintenance and enhancement of a wide range of existing Accounting and Inventory Systems in addition to preparing new interfacing systems in a progressive move towards M.I.S. Assistance will be given with accommodation allowances and furniture loans. Equally, concessionary car purchase facilities will be offered as an attractive fringe benefit.

## IBM Senior Systems Analysts c £12000

We seek a candidate, preferably with some Oil Industry experience to assist with the maintenance and development of inventory systems. Extensive CICS and DL/1 work is involved. Subsequently, a minimum 2 years practical experience of CICS is sought and at least 1 years DL/1. Analysts should have a sound knowledge of Database. Ability to work in a consulting role will be advantageous.

EMS

EMS CONSULTANTS LTD  
ALLOTMENT STREET  
NEWCASTLE UPON TYNE  
NE4 6JH  
Tel: 0632 620000

# ON THE 9th MAY WE'LL BE DANGLING CARROTS.



You could end up with a plum.

On the 9th May in regional centres throughout the country, Systime Limited is holding a series of informal interviews for a variety of personnel in computing.

This is an unusual opportunity to further your career in one of the world's fastest growing computer companies. Our experience and reputation as a major manufacturer in mini-computers, together with the rapid expansion plans ahead, ensures both a stimulating working environment and excellent career opportunities for the future.

Salary conditions and bonus' all reflect the company's assured market position. Certain job functions include company car.

The carrot has been dangled, now's your chance to taste one of these plums.

Informal interviews are being held from 5.00-8.30pm on 9th May, 1978 at the following hotels:

### London

The Bloomsbury Centre Hotel  
Coram Street  
LONDON WC2

Richard Pinkham  
Systime Limited  
Clenary House  
98 Camden High Street  
LONDON NW1 0LT  
Tel: 01-388-7921

### Manchester

The Grand Hotel  
Aylton Street  
MANCHESTER

Roy Green  
Systime Limited  
Glebe House  
Alkinson Road  
Urmston  
MANCHESTER M31 1AD  
Tel: 061-747-7424

### Leeds

The Queens Hotel  
City Square  
LEEDS

Head office:  
SYSTIME LIMITED  
Peter Wilkinson/Gordon Higgs  
Concourse Computer Centre  
432 Dewsbury Road  
LEEDS LS11 7DF  
Tel: 0532 707411 or 707261

### Leicester

The Holiday Inn  
St. Nicholas' Circle  
LEICESTER

Andy Coleman  
Systime Limited  
Kimberley House  
47 Vaughan Way  
LEICESTER  
Tel: 0533-22212

### Glasgow

The Albany  
Bohwell Street  
GLASGOW

David Watt  
Systime Limited  
Standard Buildings  
94 Hope Street  
GLASGOW G2  
Tel: 041-221-6152

### Dublin

Royal Dublin  
Upper O'Connell Street  
DUBLIN

John More  
Systime Limited  
32 Molesworth Street  
DUBLIN  
Ireland  
Tel: Duplin 767635

## Central Support Operations

Central Support Operations are based at Systime's head office in Leeds and consist of three departments.

**Technical Support.** Responsible for the development, maintenance and support of basic software, including operating systems, compilers and development aids.

**Applications Support.** Concerned with the development and support of Systime application packages which will continually extend to new application areas.

**General Services.** Responsible for the bureau operation, software distribution, training and technical administration.

## Technical Support

**Consultant - Communications.** Applicants should have extensive experience in the communications field, preferably including projects involving DEC equipment.

**Support Specialist.** Applicants should have a minimum of five years computer experience with a bias towards operating systems or compilers. Experience of DEC operating systems or Basis Plus would be advantageous.

**Systems Programmer.** Applicants should have a minimum of three years programming experience and a significant interest in technical development. Previous involvement in basic software would be advantageous.

## Applications Support

**Support Specialists.** Applicants must have a minimum of five years experience with a specific knowledge of one or more of the following areas:

Financial Accounting - sales ledgers, purchase ledgers, nominal ledgers.

Personnel Accounting - personnel management, time recording, payroll.

Inventory Control - order processing, stock recording, inventory accounting.

Manufacturing Systems - parts explosions, material requirements planning, production scheduling, workshop documentation, work-in-progress.

**Systems Engineers.** Applicants must have a minimum of three years experience, including a period as analyst/programmer.

**Applications Programmers.** Applicants must have a minimum of one years commercial programming experience, preferably in an interactive systems environment.

## General Services

**Department Manager.** This is a senior management appointment and applicants must have had at least two years proven management experience. Responsibilities will include the recruitment, career development and reporting, procedures for all personnel associated with the bureau, training and software administration. A company car and assistance with relocation expenses will be provided.

**Training Officers.** Additional personnel are required to develop training programmes for Systime and client staff. Courses will be relevant to programming (Basis Plus), operating systems, computer operations management and systems design.

All positions offer competitive salaries and a generous bonus scheme.

For all central support positions, applicants should write or telephone Bev Stevens at Systime head office or if preferred applicants may attend the informal interviews at the hotels indicated, where their interest will be discussed and reported.

051 07 144

**SYSTIME**



# COMPUTE OUR NUCLEAR FUTURE AT RISLEY, NUCLEAR CENTRE FOR THE U.K.

British Nuclear Fuels Limited is one of the world's largest suppliers of nuclear fuel services and is currently engaged in a major expansion programme. This is creating a rising demand for all kinds of computer applications, personnel and equipment — and coincides with transfer of mainstream computing to an ICL 2980. At Head Office we are meeting the challenge by expanding both Computer Services Section supporting company-wide systems development and users in financial, commercial, scientific planning and design departments; and the Computer Policy Section supporting Company Management decisions on hardware and software. Opportunities exist for:

## SENIOR PROGRAMMERS £4000 — £5290 p.a.

(Currently under review)  
The Computer Services Section requires programmers with the ability to design, progress and implement scientific and commercial systems in both batch and interactive environments, working as team leaders, maintaining standards and meeting targets. At least 4 years programming and a working knowledge of FORTRAN and COBOL are essential: knowledge of BASIC, APL and use of time-sharing bureaux is desirable.

## EXPERIENCED PROGRAMMERS £2750 — £4290 p.a.

(Currently under review)  
To work under the guidance of the Senior Programmer. Applicants should have at least 18 months experience.

For the above posts in programming, qualifications to HNC (or, for certain posts, degrees) standard are required.

## TECHNICAL OFFICERS £4620 — £5570 p.a.

(Currently under review)  
The Computer Policy Section requires suitably experienced computer professionals with Honours Degrees to investigate all factors (technical, commercial, economic and operational) of new technology — from minis to communications, APL to databases. Applicants must have an interest in all aspects and experience in several.

All posts are open to male and female applicants. Salaries within the ranges stated are currently under review for implementation April 1978. Excellent conditions of service include 4 to 4½ week holiday plus 10% day statutory and privilege holidays, an attractive superannuation scheme and assistance with relocation.

Head Office at Risley is within the nuclear centre, which is part of Warrington New Town where first-class rental housing is available. It also enjoys superb Motorway access to Marseydale, Greater Manchester and some of the most attractive areas of the North West.

**NO STAMP NEEDED!** Simply fill in and post this coupon now to: Staff Officer, British Nuclear Fuels Limited, FREEPOST, Risley, Warrington WA3 1BR.

Please send Application Form for the post of: Senior Programmer/Experienced Programmer/Technical Officer (delete posts that do NOT interest you)

NAME .....

ADDRESS .....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

## SENIOR PROJECT MANAGER

J. H. Senkey & Son Ltd. is a national builders' merchant company with over 100 branches and a nine-figure turnover. The company is embarking on a comprehensive development plan that could encompass hardware from minis to mainframes. A pilot scheme is just starting in two branches using a PDP 11/34 for order entry, invoicing, stock control, purchasing and financial systems. This is a ground floor opportunity for a person to take responsibility for all group systems development. The person appointed must be a self-starter with several years' experience of commercial programming and systems design. This experience must include leading at least one major project from start to finish. Experience of PDP-11 and RSTS and BASIC is essential. The job is based at Wembley but considerable travel within the U.K. will be involved at times. The appointment commands a good salary and company car and full range of employee benefits.

Application in writing stating background and experience and present salary should be sent in confidence to:

E. A. W. Smith, Group Personnel Director  
J. H. Senkey & Son Limited  
Station House, Harrow Road, Wembley, Middlesex HA9 6DB

## SANKEY

THE BUILDERS MERCHANT

### CITY OF BIRMINGHAM POLYTECHNIC

Department of Computer Studies  
and Mathematics

### LECTURER II/ SENIOR LECTURER IN COMPUTING

Applicants should be graduates and possess either a higher degree in computing or practical experience of Systems Programming.

Salary scales:  
Lecturer II £2744-£3085  
Senior Lecturer £3023-£3447 (bar)

£3500  
including 10% and 1977 supplements

Further details and application forms can be obtained from 10th May 1978 from The Personnel Officer (CWP), City of Birmingham Polytechnic, 1, Blomfield, Perry Barr, Birmingham B43 2SL.

### NEWCASTLE-UPON-TYNE POLYTECHNIC

Department of Computer Studies  
and Mathematics

### SYSTEMS ANALYST (Administration)

Responsibilities for the design, development and maintenance of computer based information systems and related hardware. Duties include the design, development and maintenance of the systems and related hardware. Duties include the design, development and maintenance of the systems and related hardware.

Applicants should be graduates and possess either a higher degree in computing or practical experience of Systems Programming.

Salary scales:  
Lecturer II £2744-£3085  
Senior Lecturer £3023-£3447 (bar)

£3500  
including 10% and 1977 supplements

Further details and application forms can be obtained from 10th May 1978 from The Personnel Officer (CWP), City of Birmingham Polytechnic, 1, Blomfield, Perry Barr, Birmingham B43 2SL.

### COMPUTER TERMINAL EQUIPMENT

Tutors are invited for the supply, installation, delivery and service of computer terminal and communication equipment at the Traffic Dept., 11 Christchurch Place, Dublin 8.

Copies of instructions to tenders for specific terminal equipment should be obtained from the Approved Officer, Traffic Department, 13 Christchurch Place, Dublin 8.

Latest date for receipt of tenders in sealed envelopes marked "Computer Terminal Equipment" is 12 noon on 14th May 1978.

.....

.....

.....

.....

## Reckitt & Colman Limited U.K. Leisure Division

### Systems Analyst C. £6,500

The newly formed Leisure Division of Reckitt & Colman Limited is based at Winsor & Newton Limited in Westbury, Wiltshire. The Division is mainly involved in the manufacture and supply of art and craft materials and includes the world famous names of Winsor & Newton, Reeves, Dryad and Charles Fazio.

A Systems Analyst is required to work on a complete review of all systems in the operating companies. A minimum of two years systems experience is required but the ability to work on own initiative and liaise at all levels within the division are paramount in practice. There will be deep involvement in projects from feasibility through to implementation.

Please telephone for further details and an Application Form or alternatively send full career details to: Ames Personnel, 150 Boundary Road, London, SW12 8HG.

## AMES PERSONNEL

TELEPHONE: 01-767 0611

### PROGRAMMER/ ANALYST

Required for IBM installation in North London. Minimum 1½ years' programming experience. Knowledge of Analysis, COB, and TP an advantage, but not essential. Highly competitive salary plus good company benefits.

Telephone: 01-257 8023  
Mr. Hayden

## Computing in Education Administration

Middlesex Polytechnic is currently establishing a new team to develop aspects of a Polytechnic-wide computer-based management information system and corporate model. The initial emphasis is on resource management, covering students, staff, buildings and finances. The Polytechnic has a DEC system 10 computer and all applications will be developed and operated on-line. Ultimately a central database will be created with which all the applications will interface.

### Senior Analyst/Programmers \$01/2: £5044 - £5797 p.a. inc.

Two vacancies exist at senior level for Senior Analyst/Programmers. Please write to: Ames Personnel, 150 Boundary Road, London, SW12 8HG. Closing date: 10th May 1978.

## MYRIAD OPERATIONS

Computer Personnel Consultants

### BURROUGHS in SURREY

Junior Operators to Shift Leaders — To £5500

A leading British service organisation is currently seeking additional operations personnel to play a substantial role in the future expansion of their computing facilities: a major upgrade being planned within the next year.

You will have a successful operations background to date, and will be keen to pursue an active career in the future. Full training will be given, so if Burroughs hardware is currently alien to you this is a rare opportunity to work on some sophisticated and powerful kit.

You should, of course, be available to work shifts, for which a generous allowance is included in the salaries offered. These will be in the range £3500-£5500, dependent entirely upon your experience, and are supported by valuable fringe benefits.

## OPERATIONS MANAGEMENT

HOME COUNTIES £6000-£7500

With commitment to data processing having been established, this multi-million pound organisation is seeking a manager for their young and exciting operations team.

In addition to controlling all the normal aspects of computer operations, an ability to set up procedures, evaluate performance and propose new ideas for the continued growth of the installation are qualities that will lead to a full, demanding and rewarding career.

A mature outlook backed by several years' D.P. experience, including telecommunications knowledge and supervisory ability, are distinct advantages since there will also be large involvement with both users and all levels of management.

## SENIOR OPERATOR

Shift Leader Designate

HERTS

CIRCA £4300

An ideal opportunity exists for an IBM OOS/VS operator with a minimum of 18 months' experience to develop their career with this American backed manufacturing company.

Running under a two shift system this medium sized installation is in the process of developing several major projects. This position presents a challenge to keen, energetic operators with the leader potential to demonstrate their ability, and for those with the aptitude, encouragement is shown for progression into programming.

Apart from the generous salary, a comprehensive range of other benefits are offered.

## ICL in ESSEX

3 shifts

£Negotiable

A rapidly expanding computer services organisation is currently seeking additional computer OPERATORS at both JUNIOR and SENIOR levels, i.e. 6 months - 5 years' experience.

Installed hardware comprises a medium ICL 1900 system running under GEORGE II. You are sure of an interesting workload processing a variety of batch and on-line applications.

This is a young company with progressive ideas. Therefore opportunities to further your career are excellent if you are prepared to adapt and develop your current experience.

An attractive range of fringe benefits accompany the generous commencing salary and successful applicants will enjoy working in a pleasant friendly environment.

24-hour answering service  
Please telephone for a confidential  
discussion or write to:  
30 Fleet Street London EC4Y 1AA  
01-353 0981

## B P

### BIRMINGHAM

Paul Mitchell  
111 New Street  
MANAGER

up to £7,000. Programmer/Analyst. An in-depth knowledge of General systems programming. Assume command for all D.P. including supervision design and implementation. Manufacturing retail distribution experience preferred.

### ANALYST/PROGRAMMER

up to £5500  
Manufacturer Software House seek experienced personnel to implement user written systems. RPG II essential.

### SENIOR ANALYST & PROGRAMMERS

£5-£8000  
Centrally situated manufacturing distribution centre, currently enhancing its existing hardware to 1902T; to develop on-line and batch systems. A programming background in the case of analyst and COBOL and or PLAN essential for the programmers.

### COVENTRY

Stuart James  
Coventry Point, Market Way  
ANALYST/PROGRAMMER

£5,000  
With 3 years' background and with experience of COBOL and DATABASE for new development with Coventry Company.

### PROGRAMMER

£4,400  
With a minimum 2 years' experience of COBOL, PLAN for 1902 installation. Developing on-line order entry system.

### SYSTEMS ENGINEER

£4,400  
Process control applications through minis and micro processors. Multi national firm developing new phase of logic systems and computerised applications.

### SOFTWARE ANALYST PROGRAMMER

£5,200  
Three years' experience of ASSEMBLER maintaining and developing effective operations environment.

### LEEDS

Irvin Rogers  
73/75 Albion St.  
SYSTEMS ANALYST

£5,500  
With excellent insurance background working for a fast moving Bureau environment. Honeywell Level 86/20 — COBOL background. Supervision of staff and user liaison. Promotion prospects are excellent.

### PROGRAMMER

£4,500  
COBOL ICL installation — in-house position — company are presently expanding. 2/3 years experience required. Excellent opportunity for ambitious programmer. Promotion to Analyst/Programmer or Analyst/Analyst in near future.

### ANALYST/PROGRAMMER

£4,500  
This major installation, with a heavy development programme requires an experienced person who has been involved in the implementation of a major project. Whilst a good programming knowledge is essential, the major function will be implementation of systems and user liaison.

### PROGRAMMERS

£5,000 + allowances + bonus  
Work mainly from home for leading Software house. Basic requirement is 12 month min. experience of ICL/IBM equipment coupled with one of the following COBOL, ASSEMBLER, PL1 or RPGII. Various grades required urgently.

### SYSTEMS MANAGER/ESS

£5,200 + review  
The initial major function will be the setting up and implementation of standards. Full responsibility for maintenance and direct staff responsibilities. ICL COBOL experience is preferred.

### MANCHESTER

David Rhodes  
88 Princess St.  
ANALYST/PROG.  
£5,500  
Experience in commercial and COBOL programming. Will be involved in pre sale post sale installation, and troubleshooting for this mini computer manufacturer. Very interesting position with big company benefits and opportunities.

### PRODUCTION CONTROL SPECIALISTS

Graduate or HND in engineering disciplines. Experienced in an engineering environment with computer based production control systems and systems design. To work for a computer manufacturer on customer specification.

## BERTRAM COMPUTER PERSONNEL

BIRMINGHAM COVENTRY LEEDS SHEFFIELD MANCHESTER

021-643 4433

0203 52471

0532 36622

0742 738783

061-236 4593

A Division of BERTRAM PERSONNEL GROUP LTD.

Middlesex Polytechnic

## Computer Operations Manager

North West

£7,500 + car

A subsidiary of a multi-national group wishes to recruit an operations manager for its largest computer centre in the North West of England. The task is to:

- motivate, direct and co-ordinate 50 operations staff engaged in three shift working
- provide an efficient computing service
- help the manager of the computer centre evolve data processing within the group (current developments are in the field of on-line applications and mini-computers)

The requirement is for someone who has successfully managed the operations function, including data preparation and data control, in a medium (or large) IBM main-frame installation in a tele-processing environment.

Preferred age middle thirties. Starting salary will be negotiable at around £7,500. There is a car provided. Promotion prospects are well defined and unusually good.

Please write in confidence for a job description and an application form to: David Pittman, Price Waterhouse Associates, Southway Tower, 29, London Bridge Street, London SE1 9BY, quoting MCS/884.



## PROGRAMMER / ANALYSTS to £6500 p.a.

**BASIC AMERSHAM** + significant benefits

Our client is an independent subsidiary of a £200 million British Group. The company is in the process of turning growth plans into reality, consequently excitement, enterprise and challenge are the order of the day. This all DEC OEM Systems House offers services covering total turnkey implementations, software sales and timesharing bureau, based on 2 x DEC PDP 11/70's and 4 DEC PDP 11/35's.

The company needs to raise its headcount with self-starters who have experience of BASIC PLUS on DEC equipment. Whether you are an experienced Analyst or only have 1 year's programming behind you, they can offer real career prospects in a dynamic environment. Working in a small, identifiable team, you will be involved in a project from start to finish, developing commercial, e.g. accounting, stock control and order processing systems.

The 25+ development group enjoy excellent working conditions and large company benefits.

Call DAVID J. HUTCHINSON to discuss these excellent opportunities further on 01-499 4501.

Ref. RW 18/1

## PROGRAMMERS FOR MICRO'S

**BUCKS** to £6,500 p.a.

All the pundits agree, the potential market for microsystems is staggering. Our clients manufacture their own, based on the DEC LSI 11 processor; and with the financial support and credibility of their £200m parent company they are determined to capitalise in the UK. They now wish to build up their software team by recruiting 3 additional programmers.

To fulfill their aims they need to add more DIBOL, FORTRAN and MACRO 11 expertise to the team. Consequently I wish to hear from candidates with 2/3 years or more experience in any of these languages. Successful candidates will work in a technical software department solving problems at a low level through involvement in basic systems design and high level language applications programming. They will enjoy a wide variety of applications.

All the conditions are right for career development; rapidly expanding market, young growing company, financial stability, interesting projects, promotion on merit, attractive salary and working conditions.

Move into micros now and your career could really take off. CALL DAVID J. HUTCHINSON on 01-499 4501.

Ref. RW 18/2

## OPERATIONS OPPORTUNITIES in the CITY and BUCKS

A dynamic and fast moving bureau is probably the most invigorating working environment for operations personnel and our clients are just that. This very professional company offers both batch and on-line facilities from 2 computer centres situated in BUCKS and the CITY. Already well established they offer services to both companies within their international parent Group and to many outside users. The department operates a 2 shift system covering weekdays only. Their planned growth has created some real career opportunities for the right people.

IF, AFTER READING BELOW, YOU WISH TO APPLY PLEASE WRITE TO DAVID J. HUTCHINSON DETAILING YOUR QUALIFICATIONS AND CAREER TO DATE.

## OPERATIONS MANAGER

**BUCKS** c.£6,000

This person will have total responsibility for the operation of a medium sized installation. Candidates should have the desire to move into junior management and the ability to handle customers. The successful applicant is likely to be aged 26-32 and may have a traditional operations background or be a systems analyst wishing to broaden their career. Relocation will be considered. A full job specification will be available at interview.

## SHIFT LEADERS BUCKS and CITY to £4,250 + 20% S.A.

If you are young, competent and ambitious enough to see yourself moving upwards into operations management within 2 years then please apply. As the senior man in the computer room you will control a small team and play an active part in liaising with customers. Aged around 23-25, preferably with 'A' levels, you should have c 3 years ops. experience including on-line systems. Full training will be given, including programming. Here is an excellent opportunity for personal development.

## OPERATIONS TRAINEE OPERATORS BUCKS and CITY £3-£3,500 + 20% S.A.

Superb opportunities exist for operators who wish to play a big part in a small team and for bright young people who wish to make their entrée into computing as a trainee operator. Your progress will be up to you. Aged 20-ish you should be alert, able to communicate, and want to take full advantage of the training offered (this includes programming).

WRITE QUOTING  
REF. NO. RW 18/2  
TO DAVID J. HUTCHINSON

**hutchinson-scoggins recruitment**  
110 Dover Street, London W1X 3PH  
Telephone 01-499 4501

## Duncan Bransom Recruitment COBOL PROGRAMMERS up to £6.500 plus overtime & profit sharing

### What's it like - working for a firm of consultants?

To start with, life is never dull. You are working steadily all the time with plenty of opportunity for advancing your professional career. With overtime pay and profit sharing, you should be able to add about 25% to your basic salary.

At Duncan Bransom Ltd you will join a team of highly skilled professionals. After a brief orientation period (lasting perhaps about two or three days) you will find yourself on interesting assignments within your existing capacity. Additional training will be provided as required to help you progress through the company.

Naturally you will be expected to be better at your work than the client's own staff and thus the work will only suit those who are highly skilled and also are prepared for plenty of hard work.

Please write or telephone for an application form to:  
Roger Griffiths, Duncan Bransom Ltd.,  
37, Hillcrest Road, Loughton, Essex  
Telephone 01-508 5121

**Duncan Bransom Limited**



Ref D12

## SOFTWARE PROGRAMMERS

Salary up to £5,000 pa (including supplements)

### Bored with application programming and coding sheets or operating?

Then use your computing ability and personality by joining our Technical Support Group in the Welsh Water Authority's expanding Computer Services Group.

These posts offer further career and technical training and the opportunity to become involved in the varied and interesting aspects of Operational and Technical Support including extensive TP network and the generation and control of new and existing software.

The Group is responsible for all systems software including COMMS MANAGER, MAXIMOP and DRIVER based programs; software and communications performance monitoring and future hardware planning.

These are new appointments in the Authority's rapidly developing central installation. The initial equipment is based upon a 1902T computer with ICL 7502 Intelligent Terminals located at various sites throughout Wales.

Ideally you will need a knowledge of and experience in one or more of the following: COBOL, PLAN, ICL Communications Software, Utilities, ICL Operating Systems.

The posts will be based at Bridgend, Mid Glamorgan. Excellent conditions of service include generous re-location and possible bridging loan finance.

Assistant Personnel Officer (Ref No 157) Welsh Water Authority  
Cambrian Way, Brecon, Powys LD3 7HP Closing Date: 18th May 1978.



**WELSH WATER AUTHORITY**  
AWDURDOD DWR CYMRU





## PROGRAMMERS

### RENTOKIL LIMITED EAST GRINSTEAD

Further programmers of varying experience required for mixed batch/on-line applications on ICL 1902T 64K disc/tape and ICL 1500 configurations using COBOL, PLAN and CDE.

Conditions of employment are generous with fringe benefits which include Contributory Pension Scheme, Profit Share, Free Staff Restaurant and Staff Discount. There is an active Sports and Social Club. Situated on the Kent, Surrey and Sussex borders, East Grinstead offers pleasant and varied living and recreational facilities.

Salary up to £5,000 p.a.

Write or telephone: A. Appleby  
Rentokil House  
Garland Road  
East Grinstead  
West Sussex  
RH19 1DY  
Tel. E.G. (0342) 27171

### Leeds Polytechnic School of Mathematics and Computing LECTURER II

Applications are invited for several posts at Lecturer II level. Applicants should be qualified, preferably with practical experience, in one or more of the following areas: Operational Research, Statistics, Computing and should be willing to contribute to the School's teaching and research and consultancy.

Salary Scale (under review) £3744-£5985 - includes supplements  
Details from:  
The Services Officer (C.24)  
Leeds Polytechnic  
Calverley Street  
Leeds LS1 3HE  
0532 462623  
Please enclose s.a.s.  
Closing date 17 May 1978.

## Senior Systems Programmer

Starting salary up to £7000 pa

London Electricity are seeking to recruit a senior systems programmer to work in their software project team within their Computer Services Department situated 10 minutes walk from London Bridge and Waterloo Stations.

The work of the team includes the generation and support of IBM operating systems and of other programme products, and technical support for 4 application development teams.

The installation is currently operating two 370/158 processors under OS/VS, and uses CICS and DL/I for teleprocessing applications.

A good knowledge of IBM assembler and of JCL is required, and experience of relevant software is a definite advantage. The salary offered to the successful applicant will be

dependent on his/her depth and width of experience within a scale rising to £7600 pa. Training will be given as necessary.

Besides a competitive salary, the successful applicant will have the benefit of good pension and insurance schemes, good social and sports facilities and privilege purchases. A continuous programme of specialist training is given to help professional staff develop their skills in a progressive installation offering excellent opportunities for career development.

To find out more about this challenging post please telephone 01-407 2261 quoting reference CVI/2893 during office hours or write to:

The Manager, Computer Services,  
London Electricity Board, PO Box 74,  
London SE1 6NL.

*The power  
behind London*



### Worwickshire County Council County Engineer's Department

## Senior Computer Officer

P.O.1 (1-5) (£4,800-£5,280) plus Supplementary Allowances. Post No. E.41

Applications are invited from suitably qualified persons for the post of Senior Computer Officer who will be responsible for co-ordinating the Computer activities in the various sections of the County Engineer's Department including the R.C.U. Sub-Unit and for programme development and maintenance, data management and Education. The appointment is on the permanent staff of the Warwickshire County Council and subject to the National Scheme of Conditions of Service as adopted by the County Council and to the Local Government Superannuation Acts. The appointment is also subject to the production of a satisfactory medical questionnaire.

Flexible working hours, staff restaurant and facilities, settling in allowance up to a maximum of £700 payable in appropriate cases.

Application forms are available from the County Engineer, P.O. Box 50, Shire Hall, Warwick, CV34 4RJ, to whom they should be returned by not later than Friday, May 26, 1978.

D. G. FULLER  
County Secretary  
Shire Hall, WARWICK

## PROGRAMMER ANALYST

GLASGOW

We are a well established specialised engineering company with a wide range of precision, optical and electronic products.

We are looking for a Programmer/Analyst to work on Production Control and Bill of Material Systems. The work will involve collaboration in the design and programming of these systems or in the selection and implementation of appropriate packages.

Candidates should have some experience of Factory Control Systems, a knowledge of RPG 11 and the ICL 2803 or 1900 is desirable.

Full details of age, education and experience should be submitted in writing to

The Personnel Manager  
**Barr & Stroud Limited**  
Anniesland Glasgow G13 1HZ

### Computer Operator/Programmers

£3282-£3622 p.a. inc.

(+ Phase III salary award, payable from July 1)

Two opportunities to become involved in setting up the reorganised computing service for Middlesex Polytechnic. The Polytechnic has a DECsystem 10 computer, and the Computer Operator/Programmer will join small teams responsible for remote access terminals at various Polytechnic sites in north London. While the main element of the post is operating activities opportunities will arise to train in and assist with programming.

You should have good relevant experience of computer operations work, preferably in an interactive environment, possess common sense and an accurate approach to work.

Telephone Gill Madden on 01-202 6645 for an informal discussion, or write for full details and an application form, quoting Ref. 113 155. If you are interested in working at Bounds Green, Ref. 113 156 for Cockfosters. Post your letter and details to: Appointments Office (ignore ref.), Middlesex Polytechnic, Bounds Green Road, London N11 2ND. Closing date, May 15.

### Middlesex Polytechnic

## Come West and Live!

Salaries c £3.5k - £8k+

Vacancies exist for all levels of computer personnel in locations throughout the West Country. Many of our clients are expanding and installing new equipment incorporating the latest techniques and providing excellent opportunities for career progression. We need URGENTLY: Analysts and Programmers with in-depth experience of PDP-11, using RSTS and BASIC+. Exciting salaries and prospects with a young, dynamic company.

We also have requirements for: Systems Analysts - all levels, ICL Programmers - COBOL, PLAN, ASSEMBLER, IBM Programmers - COBOL, PL1, Technical Programmers - CORAL 88, FORTRAN.

For further details in strict confidence write or telephone:

Walker-Weston Associates Limited,  
Specialists in Computer Recruitment  
Woodlands Lower Bristol Road, Bath,  
Avon. Tel. Bath 317890.

### Leading French Bank requires a

## PROGRAMMER

with at least 2 years' experience to help develop their Honeywell based real-time banking system. Previous experience in banking or with real-time systems would be an advantage and a mature attitude essential. Salary £4,000 to £5,000 or more, depending on experience. Good staff benefits.

Write full details to:

Staff Manager  
Banque De L'Indochine  
De Deaux  
82-84 Bishopsgate  
London EC2N 4AR  
or telephone Mr. J. Day  
on 01-552 4841

### PROGRAMMERS

to your  
CLOSE ENCOUNTER  
of the ONLY kind - Confidential  
VIP  
CONSULTANTS  
INTERNATIONAL  
01-481 3208/49 9000  
100 2511  
FOUR OUT OFFICE  
WORLDWIDE

### LONDON BOROUGH OF BARNET Borough Treasurer's Department PROGRAMMER

Salary Scale AP.1/5 - up to £4,000 p.a. (Inclusive), Impending salary award from 1st July.

The Council operates an ICL 1903T computer running under George III (to be replaced by an ICL 2960 in September).

Applications are invited from Programmers with at least two years' experience in 1900 COBOL and/or PLAN.

The successful applicant will be engaged in the development and maintenance of a wide range of applications, including conversion to 2960.

Separation allowance payable up to six months' net income in exceptional cases, 100% of removal expenses, interest-free loans for the purchase of annual or six-monthly season tickets, additional leave at public bank holidays.

Application forms available from Room 48, Borough Treasurer's Department, Town Hall, London, London NW4 4BQ. Telephone number 01-202 8282, Ext. 120, quoting reference number 267. Closing date 22nd May, 1978.

### University of Wales

## COMPUTER OFFICER

DEPARTMENT OF COMPUTING

with experience in the application of Statistical Methods, and the ability to assist in the design and development of software, at the University of Wales, Cardiff.

Requires (ignoring Ref. CW) full details and application form to: Personnel Section (Academic), UWIST, Cardiff CF1 3NL.

Salary: £3060-£6178  
Closing Date: 19 May 1978

## COMPUTER AIDED DESIGN



The computer configuration comprises Prime 400 minis together with a dual ICL 1900 mainframe and to cope with the growth rate forecast, particularly in the areas of teleprocessing and VDU's, they require an

additional Computer Aided Design Engineer to supplement their already highly professional team. It is hoped that applicants will have most of the following qualities:

- \* SOUND KNOWLEDGE OF FORTRAN
- \* EXPERIENCE OF SYSTEM DESIGN
- \* INVOLVEMENT WITH MINI COMPUTERS
- \* KNOWLEDGE OF NOVEL TECHNIQUES, ALGORITHMS AND GRAPHICS
- \* MAINFRAME EXPERIENCE USEFUL

The organisation is prepared to invest heavily in additional training and can offer first-class career opportunities.

The location is STEVENAGE (HUNTS) FOR RELOCATION ASSISTANCE is offered if necessary. The salary will be HIGHLY COMPETITIVE and benefits include a good Pension Scheme, company facilities and full sports and social activities. Ref. WG 703

### D.P. RECRUITMENT LTD.

KENT HOUSE, 67 REGENT STREET, LONDON W1R 7W  
TEL 01-437 2062 3-4 (24-HOUR ANSWERPHONE)

### Abraxas Recruitment Division

**ABRAXAS**

West End House,  
11 Tills Place,  
London W1R 1AG

01-439 8891

## SOUTH HERTS/NORTH LONDON BORDER

If this is your part of the world (or an area you would like to relocate to), you will be interested to hear about current vacancies with our client, the head office computer centre of a major public company. The vacancies have come about as the result of some important new systems development projects including On-Line Sales & Marketing, Point of Sale Data Capture, Financial Database, Installation of Satellite Minicomputers and Extension to the Communications Network.

To cope with increased workload the company will shortly take delivery of a large IBM installation, which will run under MVS with the latest peripherals and mass storage devices.

During 1978, the company will require programming and systems staff at all levels. Job descriptions for several of the staff required are outlined below.

The company seeks enthusiastic and able professionals with experience gained on any IBM hardware, since full retraining will be given to all personnel during 1978/9.

Staff conditions include Relocation assistance where applicable, company car park, excellent staff restaurant, 38-hour week, pensions and sick pay schemes, free coach service and first-class social and sporting activities.

### SYSTEMS ANALYSTS SENIOR SYSTEMS ANALYST

£5,600-£6,500

An experienced person is required to lead the new development of a fixed assets accounting system. Suitable applicants will have a minimum of 3 years' analysis experience and whilst IBM knowledge is desirable it is not essential since full training will be provided.

### SYSTEMS ANALYST

£4,900-£5,800

The first project will be to work with a team developing a Distribution system which will involve the use of Communications equipment. The suitable applicant should have a minimum of around 2 years' experience of Analysis/Design in a commercial environment. A programming background would be preferred but is not essential.

INTERESTED? Contact SIMON BERRY at the above address/telephone number to receive full company information and application form. N.B. If you are interested but not ready to leave your present company, please inform me of your interest anyway.

Abraxas Computer Employment Ltd.

## THORBAR

(RECRUITMENT AND CONSULTANCY SERVICES) LIMITED

Greenock House 19 Cuckfield Road Hurstpierpoint Sussex

Telephone 0273 833848

### SPECIALISTS IN DP AND EXECUTIVE RECRUITMENT

ESSEX

## SENIOR ANALYST PROGRAMMERS ANALYST PROGRAMMERS

Salary to £7500

Salary to £5500

According to experience

### CAREER PROGRESSION: PROGRAMMER - ANALYST PROGRAMMER SENIOR ANALYST PROGRAMMER - CONSULTANT

Do you fit into this career progression and are you looking for an opportunity with tremendous job interest. Our clients are a company with worldwide reputation and can offer application areas that involve database on-line real time processing.

They are looking for candidates with high or low level languages experience (at least 18 months). On the systems side an ability to 'live' with a project from feasibility to implementation.

Candidates with software experience, i.e. database or real time minis are especially sought after.

The appointments could turn out to be a real opportunity. Relocation expenses will be met by candidate willing to make a move from the north south or west.

PLEASE RING IMMEDIATELY FOR FURTHER DETAILS



# MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

## PROGS and ANALYSTS — where are you?

Contact us. We have the widest choice of career opportunities throughout the U.K. and abroad, offering excellent salaries and prospects. Whatever the field or language, we can help.  
*Here is just a small selection:*

### MIDDLE EAST

Programmer: RPG 11, 370/115 to \$18,000 U.S.

### LONDON

Trainee Programmer: Degree level to 4½K  
Programmer: COBOL Insurance and Banking to 5½K  
Analyst: Insurance and Banking to 7K

### GLOUCESTER

Programmer: Software Spec. to 6K

### BIRMINGHAM

Analyst / Programmer to 5½K

### LEEDS

Jnr. Analyst to 5K

For a confidential chat about these positions or for professional advice on your next move

Contact Tony McGrath

\*Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

## CUSTOMER ENGINEERS LONDON & W COUNTRY

£6-8K package

Experienced mini and mainframe engineers can take a big step forward by joining this world renowned international manufacturer.

As a member of a strong team of professionals within a multinational organisation, your career prospects would be excellent with full training given on company products. A regular review of ability and salary provides an incentive, and ensures that effort and talent are realistically rewarded.

The main responsibility of these positions is the maintenance of various computer systems and their associated peripherals to provide the reliable and efficient service for which the company is well known. Engineers concerned with large mainframe systems will be resident on site whereas those servicing smaller systems will be mobile. To be capable of these demanding roles you will need to have had at least four years' mainframe or two years mini computer and peripheral maintenance experience and have the ability to communicate with customers at all levels.

Excellent benefits are given by this international company. If a challenging position offering substantial rewards interests you — Contact Peter Gorton

MANAGEMENT & EXECUTIVE SELECTION

# If our terminals are so good why do our salesmen have to be so good to sell them?

Because the market we've chosen is big, expanding... and tough. Raytheon Cossor's terminal systems are sophisticated, designed for the most demanding computer users. To demonstrate the improvements they can bring to an installation requires a thorough understanding of the client's environment. And since many of our users operate IBM mainframes, IBM itself is one of our prime competitors. That alone means our sales executives have to be rather special.

Their success so far can be judged by the programmable PTS 100. It has become one of the world's most widely-used display terminals, with over 50,000 installed and the number still growing. Now we have the new PTS 1200 distributed processing system. And we need further senior sales staff to help repeat the success of the PTS 100, on which it is based.

Write giving brief career details or telephone for an application form to:  
W. D. Barrow, Raytheon Cossor Data Systems, The Pinnacles,  
Harlow, Essex CM19 9BB. Telephone: (0279) 26862

**Raytheon Cossor Data Systems**

## Sales Executives

Candidates will have sound D.P. backgrounds and a proven record in selling computer equipment to large industrial and commercial organisations. They will have experience of transaction systems including order processing and, ideally, of distributed processing. We are especially interested in knowledge of banking, insurance, airlines and the distribution industries. Vacancies exist in the South-East, based at Harlow, in the Midlands, based at Birmingham, and in Manchester, for the North of England and Scotland.

Salary and commission should give annual earnings of £10,000 plus. A car will be provided.

## OEM Sales Manager

A growing number of independent suppliers are incorporating Raytheon Cossor hardware in their systems. We are creating the new post of OEM Sales Manager to develop this business into a significant outlet for PTS equipment. Existing clients are in the U.K., Norway and Denmark. Extensive travel in these and other European countries is envisaged.

Candidates must have knowledge of mainframes, minicomputers and programmable terminals. They must know the OEM business thoroughly, from either the selling or buying side. They will have the energy and initiative to develop, then follow through, sales strategies appropriate to the PTS range.

Initially, salary and commission should provide annual earnings of at least £11,000. A car will be provided.

01-637 9611

JBA

## Systems Analyst

London up to £7,000  
Our client, part of the international Schlumberger Group who specialise in services to the oil and exploration industry, have an opportunity for a Systems Analyst to join a well established development team. Applicants should have had about five years in data processing with the early part spent as a programmer preferably in an IBM installation. Experience with users and in the design of commercial applications is essential.  
Salary according to experience. Generous fringe benefits including L.V.'s International travel.

Schlumberger

Contact: Jim Baker

## \*System Support Analysts †Development Programmers

\*North of Birmingham & †Dorset to £6,000 + car  
An export award-winning manufacturer of data-entry systems have opportunities for graduate programmers to contribute to major development projects. Applicants must have at least 18 months mini/micro application experience gained preferably in a technical environment. Commercially minded analysts will be involved with customers, identifying problems and be responsible for resolving them quickly and effectively.  
These positions are well rewarded and offer a challenge to professionals wishing to enhance their expertise.

Contact: Margaret Stevens

## Systems Analyst

Midlands c. £6,000  
A large international engineering organisation has an immediate vacancy for a Systems Analyst to work on the development of financial and manufacturing applications. Candidates should have at least two years in the design of commercial systems preferably with real-time or on-line techniques. A sound IBM programming background would be an advantage. The company are looking for a person with potential who will be able to take more responsibility in the near future.  
Excellent salaries and usual large company benefits. Relocation expenses. Contact: Jim Baker

For further information on any of the above vacancies please contact the appropriate consultant.

If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

**JAMES BAKER ASSOCIATES, International Personnel Consultants**  
16 Maddox Street, London W1. Tel: 01-491 4478

## HOLLAND

Technical Authors up to £12,000+  
Applications software, data communications, or digital electronics. Any of these skills plus a flair for writing will be of interest to our clients.  
Contact: Mike Craamer

## MIDDLE EAST

Programmer to Project Leaders up to £15,000 (Net)  
A variety of long-term and very interesting positions for, basically, sound IBM professionals with commercial experience. All positions are married accompanied (pref no children) and all housing is free. If you are interested, whatever your experience, we'd like to hear from you.  
Contact: Mike Craamer

## Analyst/Programmers

Coventry c. £5,500  
Our client, a well known manufacturing company, is looking for several Analyst/Programmers to join their expanding development teams. Several years as a COBOL programmer is essential together with experience in the design of at least one commercial application. Above average salaries and opportunities. Generous benefits, including assistance with relocation.  
Contact: Jim Baker

## Technical Advisors

Herts to £5,400 + car allowance  
Excellent opportunities have arisen with a small business systems manufacturer for experienced software/commercial support persons to provide liaison and technical aid to a wide ranging customer base. Candidates should have a minimum of one year's implementation or post sales support experience of small commercial computer systems. Since the key function is client liaison appointees will be personable individuals with the ability to communicate effectively with technical managers.  
A substantial starting salary will be paid to attract high calibre people.  
Contact: Margaret Stevens

# We're big enough to have the contacts; small enough to care about you

The many permanent vacancies we have on our register include:

1. BUSINESS SYSTEM SALESMEN, preferably with some aviation background. Based Croydon, basic salary + expenses + company car + realistic commission structure means your first year's earnings are in excess of £10K. Ref: IC/190
2. COBOL PROGRAMMERS (2 years' experience) — £4.2K. LEAD PROGRAMMERS (3 years' experience) — £5.6K. SENIOR PROGRAMMERS (4 years' experience) — £6K; for City-based multi-national group using IBM 370 under DOS. Ref: EL/171
3. REAL TIME PROGRAMMERS, minimum 18 months' experience. Date General (pref) Fortran and/or Assembler would help. £8K + all the perks of a rapidly expanding young company in West London. Ref: KG/231
4. THIS WEEK'S FEATURED JOB:  
DP MANAGERSHIP awaits System 3 RPG II ANALYST PROGRAMMER. After initial trial period promotion to DPM will qualify for a salary of £6K+. Outstanding opportunity! London W1. Ref: CK/169
5. ANALYST AND/OR ANALYST PROGRAMMERS with minimum of 4 years' experience any machine any language. WE ARE IN CONTACT WITH SOFTWARE HOUSES, LARGE MULTINATIONAL ORGANISATIONS AND SMALL DP DEPARTMENTS. They all need you desperately! So call us now.

**FREELANCERS CONTRACTS EVERYWHERE. IMMEDIATE STARTS, LONG TERM (UP TO A YEAR) AND SHORT TERM (3 MONTHS). OUR RATES ARE RIDICULOUSLY GENEROUS! WE ALSO HAVE TOP-CLASS CONTRACTS PLANNED TO START OVER THE NEXT 3 MONTHS! — SO GET YOUR NAME ON OUR REGISTER, EVEN IF YOU'RE NOT IMMEDIATELY AVAILABLE.**

**THINKING OF TURNING FREELANCE? THERE'S NO RISK WITH US. WE OFFER SECURITY, CONTINUITY, TAX ADVICE AND TOP MONEY. CALL US WITHOUT OBLIGATION, NOW!**

**IT DOESN'T MATTER IF YOU DON'T FANCY THE ABOVE VACANCIES, WE'LL GO OUT OF OUR WAY TO FIND YOU SOMETHING THAT SUITS YOU. EVEN IF YOU'RE NOT THINKING OF CHANGING JOBS JUST YET, FILL IN THE COUPON AND GET YOUR NAME ON OUR REGISTER. THAT WAY YOU COULD WELL FIND THAT EXTRA SPECIAL JOB WITHOUT EVEN TRYING.**

Give IAN COX a ring on: 01-637 0106 during weekdays, or 01-272 2784 in the evenings or at weekends, or fill in and send us the coupon below.

NAME	TEL. (HOME)
ADDRESS	(OFFICE)
CURRENT POSITION	SALARY
POSITION REQUIRED	SALARY REQD.
LOCATION/AREA IN WHICH YOU WISH TO WORK	
PAST EXPERIENCE	
MACHINES	
OP. SYSTEMS	
LANGUAGES	
APPLICATIONS	
YEARS EXPERIENCE IN DP	
TO FREEPOST 26 ACS LTD., ACS HOUSE, 42-48 GT. PORTLAND ST., LONDON W1 TELEPHONE: 01-637 0106 or 272 2784 Evenings/Weekends	

Applied Computing and  
Software Limited

**ACS**

ACS House, 42-48 Great Portland Street, London W1V 1AB







**VIDECON**  
(Henley-on-Thames)

VIDECON LTD are manufacturers of the world's first multi-host computer terminal facility with an installed base worldwide. Due to continual rapid expansion we urgently require experienced

**PROGRAMMERS**

Experience in Assembler level and microcomputer programming preferred and evidence of successful programming is needed in senior posts.

Based at the Company's Headquarters at Henley-on-Thames, these posts offer a unique opportunity to work on design and development of software for the exciting new communications equipment and offer excellent career advancement prospects. Salary is negotiable, depending upon background and experience and conditions include all benefits normally associated with a successful international company.

Write, giving brief career details including present salary, to Miss H. Barker.

**NEW TOWN ESTATE  
READING ROAD  
HENLEY-ON-THAMES  
OXON, RG9 1HG**

**VIDECON LIMITED**

**PROGRAMMERS - ANALYSTS READ ON START**

IF PROGRAMMER GO TO A  
IF ANALYST GO TO 8  
GO TO C

**A. ★ ★ PROGRAMMERS ★ ★**

If you are a programmer with at least 18 months' experience in COBOL, RPL or FORTRAN then we have top positions for most systems in most areas.

**B. ★ ★ ANALYSTS ★ ★**

Urgently required - Min 18 months' commercial systems. Vacancies throughout U.K.

**C.**

Many other positions available throughout the U.K. for experienced staff.

**Gryphon Computer Recruitment -**  
Essex House, Cherrydown, Bauldon, Essex  
Contact Chris or Olive on 0268 282165

**OPPORTUNITIES  
IN GERMANY**

A major software house with offices in Munich and Cologne has recruited us to recruit for their next phase of expansion.

They look for co-workers with alert and creative minds and willing to co-operate in maintaining a tension free environment.

The applicants must have some knowledge of German and good professional skills within the range of the following fields:

Process Applications, Mini-Computers, Systems Programming, Organisation DP consultancy, Application programming and DP experience especially in IBM, OS/DOS, MINI COMPUTERS and TP, ASS. PL/1, COBOL DBOMP, and DB.

Female applicants are welcome.

Salaries from £9,000-£15,000 p.a. 6 weeks' annual holiday, assistance with relocation.

Application should be addressed to:

Shawn de Warren: CHARTERPORT Ltd., 10 Laffoy Road, London, W.12.

**COLUMBUS  
DIXON**

Manufacturers of Floor Maintenance  
Machines and Chemical Products

Columbus Dixon Limited  
Lancet Road Wembley Road HA2 2JZ  
Telephone 01-902 6001 Telex 2-2588

**NEAT / 3  
PROGRAMMER**

We are a light engineering company presently using an NCR Century 100 but with imminent plans to upgrade. We are seeking an experienced programmer wishing to convert to COBOL later in the year. Salary Neg.

Please write or phone:

Mr. Johnson, Personnel Officer

**West Yorkshire Metropolitan County Council  
Traffic Unit**

**SENIOR TECHNICIAN / PROGRAMMER**

Post Ref. T/30022

T/30022 is a £20,000-£25,000 p.a. job with a minimum of 18 months' experience.

To enter in the progression of programs which will be used in the computer based Traffic Control system being installed in Leeds. Based at the Traffic Unit, which is an integral part of the Council's Traffic Department. The successful candidate will be responsible for the design, development and testing of programs which will be used in the Traffic Control system. The successful candidate will be responsible for the design, development and testing of programs which will be used in the Traffic Control system. The successful candidate will be responsible for the design, development and testing of programs which will be used in the Traffic Control system.

Application forms may be obtained from: Computer and Planning, Engineering and Transportation, Leeds City Council, 100, Wellington, Leeds LS1 3PL. Tel. 0113 275111. Closing date: 15th May 1978.

**MYRIAD  
APPOINTMENTS  
LIMITED**

Computer Personnel Consultants

**APPLICATIONS  
CONSULTANTS**

**CITY & WEST LONDON** **To £7500 + +**

Due to the continued growth, in England, of this major U.S. Bureau several vacancies now exist for Applications Consultants. The Company market a range of powerful software products for use primarily as management aids. Based at either their City or West London offices applicants will receive thorough training before being given responsibility for client accounts and advising the marketing team in preparation of business proposals.

Ideally, applicants will have a technical background with a minimum of five years' commercial experience. Previous analysis involvement is not essential although appreciation of business issues would be an advantage.

The Company offers an excellent basic salary plus car allowance and bonuses geared to both individual and team performance. Career prospects are particularly attractive and applicants may look to progress into management.

**24-hour answering service**

Please telephone for a confidential discussion or write to:

30 Fleet Street, London EC4Y 1AA  
01-353 0981

**GROWTH**

**OPERATORS & SENIOR OPERATORS  
BEDS.**

**Up to £4650 plus overtime**

ICL 1900 & 2900 Installation

Due to exceptional growth our client will be installing an ICL 2960 System in August to operate alongside a 192K 1903T. This means new opportunities and first-class career development prospects for ambitious young operators.

The operating system is Geac/11+, which will also be run on the 2960 using D.M.E. MAXIMOP & DATAVIEW are supported for terminal users during the daytime.

A three shift system operates during the week with ample opportunities for overtime during the weekend.

**THE COMPANY**

Our client is a medium-sized engineering company employing 2,000 people. They have modern premises in rural Bedfordshire, not far from the M1 Motorway and easily accessible from population centres such as Luton and Bedford. Housing is attractive and plentiful in the area and the company will provide generous assistance with relocation costs where appropriate.

To apply for these positions please telephone Sylvia Walton or write to:

**Castle Computer Services Limited**  
277 High Street, Bournemouth, Dorset BH1 1JY, phone: (0422) 75161

**CONTRACTS  
Systems / Analyst**

We require a Systems Analyst with a minimum of 2 to 3 years' experience on ILC equipment. Ideally we are looking for someone with 2904 & IDMS experience but our Client would be willing to take someone with sound 1900 experience who has implemented a medium size system from start to finish. This contract is to commence at the beginning of June for a minimum duration of 5 months.

**PL/1 Programmers**

Required for our City based Clients. Contracts are scheduled to start beginning of May & June and are for a minimum duration of 9 months.

For further details please contact Bridget Kotchie

**RENDECK LIMITED**  
10 Dover Street  
London W1X 3PH  
Tel: 01-629 5438

**IMPERIAL COLLEGE  
Department of Computing and Control**

**SENIOR COMPUTER OPERATORS (2)**

Starting salary within the range £3,273 - £3,806 plus shift allowances. Applicants should have had at least 2 years' experience at qualified computer operators.

**TRAINEE COMPUTER OPERATOR**

Starting salary within the range £2,179 - £2,601 plus shift allowances. Applicants should be of good character and at least 17 years of age. We operate on IBM 370/138 running under VM. After periods of work on terminal operators to students of computing science. For the above positions please apply to the Department of Computing and Control, Imperial College, London, W.2.

**COMPUTER  
ENGINEERS**

**c. £5500 + CAR  
BIRMINGHAM  
& MANCHESTER**

Our client is a leading American computer manufacturer who seeks a SENIOR ENGINEER to establish a base in the MIDLANDS, and an additional engineer for the MANCHESTER area.

Both vacancies will appeal to Customer Service Engineers with at least three years' experience.

**THESE POSITIONS OFFER OUTSTANDING  
GROWTH POTENTIAL.**

For further details please contact ref. 011.

**EDP Systems**  
52-53 Margaret Street  
London W1N 7FF

**COMPUTING MANAGER**

REF: A 2001 LTD. OF SOUTH WALES

A large industrial corporation requiring a computer manager to manage the 18 M. System/32 Computer system.

The Computer System are being developed for many aspects of the manufacturing and engineering business, which includes up to 1700 people.

We require a M. Sc. or B. Sc. in Engineering or Computing with 10 years' experience in the design and development of computer systems.

The post is suitable for three years and offers a starting salary of £2,350 per annum with annual increments of £101.

Application forms and further information are available from the Staffing Section, Towards Fortnights, Borough Road, Middlesbrough, TS1 3BA, and are available within 14 days of the appearance of the advertisement.

**Electronic  
Technician**

**Computer and Data Terminal Repair**

Texas Instruments is a world leader in the highly competitive electronics market. We seek an ambitious young person, who has obtained ONC or equivalent, to undertake the fast and repair of computer and data terminals at our headquarters in Bedford.

We offer an attractive salary and excellent benefits including assistance with relocation expenses where applicable.

Please write to or ring Beryl Harris, Texas Instruments Ltd., Manton Lane, Bedford, Tel. Bedford (0234) 67466.

**TEXAS INSTRUMENTS  
LIMITED**

**Line  
Controller**

c. £4250 +  
Substantial Fringe Benefits  
BEXLEYHEATH, N.W. KENT

The Woolwich, which is one of the country's largest building societies is enhancing its telecommunications system to support its branches throughout the U.K.

The Society wishes to recruit a Line Controller who will assist in the operational running of what will ultimately be a large (1M based data communications network).

Candidates should preferably be educated to "A" level, although good "O" or CSE levels will be acceptable. Previous experience of controlling a data communications network is essential.

A comprehensive remuneration package accompanies this position including a preferential mortgage facility and excellent pension scheme. Relocation expenses may be paid where necessary.

Write or telephone for an application form to: Mr. H. C. Watling, Personnel Officer, Woolwich Equitable Building Society, 30 Erith Road, Bexleyheath, Kent, DA7 6BP. Tel. Crayford 629232, ext. 404.

**WOOLWICH  
EQUITABLE BUILDING  
SOCIETY**

**STAVELEY COMPUTING CENTRE**  
Blackpool Road, Worcester

**OPERATIONS  
MANAGER**

required for busy IBM/DEC BUREAU

Salary £7K.  
Use of Company Car

Apply to: The Managing Director  
Telephone: Worcester 53325

**Teesdale Polytechnic**

**RESEARCH ASSISTANT  
IN COMPUTER SCIENCE**

Applicants are invited to submit suitable graduates for the post of Research Assistant.

The research topic is design and implementation of systems for testing job descriptions.

The successful candidate would be expected to register for a higher degree with the University and undertake research during the year.

The post is suitable for three years and offers a starting salary of £2,350 per annum with annual increments of £101.

Application forms and further information are available from the Staffing Section, Towards Fortnights, Borough Road, Middlesbrough, TS1 3BA, and are available within 14 days of the appearance of the advertisement.

**CONTRACTS  
HOLLAND**

Systems Programmer **£1800 p.a.**

We require someone with considerable experience on IBM 370 series with VM, OS/VS1 & DL1 to be based in AMSTERDAM for a duration of 1 year.

Systems Programmer **£350 p.w.**

With IBM background and OS/VS1 experience to work in AMSTERDAM for 6 months.

**ITALY**

Programmer

With a minimum of 2/3 years' PL/1 and CICS experience. For a 3 month contract starting May 8th.

For further details please contact Bridget Kotchie

**RENDECK LIMITED**  
10 Dover Street  
London W1X 3PH  
Tel: 01-629 5438

**VIDECON  
(READING)**

VIDECON LTD are manufacturers of the world's first multi-host computer terminal system with a worldwide installed base. Due to continual rapid expansion we urgently require two experienced

**TEST ENGINEERS**

Experience in TTL and micro logic systems is essential though full training will be given on all VIDECON products. Based at the Company's new facility at Reading, these posts offer a unique opportunity to work on this revolutionary new communications concept and offer excellent career advancement prospects.

Salary is negotiable, depending upon background and experience and conditions include all the benefits normally associated with a successful international company. Write, giving brief career details including present salary, to Miss H. Barker.

**VIDECON  
LIMITED**

**NEW TOWN INDUSTRIAL ESTATE  
READING ROAD  
HENLEY-ON-THAMES  
OXON, RG9 1HO**

**OPERATORS**

**FIVE IBM 370/148 DOS VS/GRASP  
VS OPERATORS**

A great future holding the promise of rapid progress into Programming and Technical support awaits you in Central London. If you have at least 8 months' experience, you can expect a salary to **£3800**

**FOUR IBM SYSTEM 3/15 OPERATORS**

If you have 1 yr. experience, you're needed for this rapidly expanding City installation. 4 weeks' holidays, generous LVs and promotion prospects. **£4500**

**FOUR ICL MAN/GII OPERATORS**

This City-based installation is looking for ambitious Operators with around 1 yr. experience. CHEAP MORTGAGE, season ticket loan and long holidays. **£4000**

**PDP 11 SERIES: THREE SHIFT LEADERS,  
FOUR OPERATORS**

Based in Central London and the Home Counties, this Company are looking for Shift Leaders with 2 yrs. experience, and Operators with around 1 yr. experience. Either job offers excellent prospects and benefits. **£4900**

**Shift Leaders: £4900**  
**Operators: £4000**

**WHATEVER THE JOB - WHATEVER  
THE MACHINE WE CAN HELP!  
JUST RING MIKE OAKES**

**staffsone**

**COMPUTER RECRUITMENT 01-353.6931**  
9 ST. BRIDE ST. LONDON EC4

**COMPUTER WEEKLY, May 4, 1978**

**The Hexadecimal Kids**  
...and his faithful dog Asci

A fantasy in 16 bits by Richard Forsyth

**BIT 16 (THE PARITY BIT)**

AFTER 6 fruitless nights, Hex has left Buse 16 to seek Asci, whose address he has picked up by radio. He makes his way to Silicon Valley once more, where he is confronted by a scene of devastation. All the humans in the reservation have been killed by the neutron grenades of the Night Operators - all, that is, except Dr Null who lies mortally wounded under a binary tree attended by the faithful Asci. Dr Null discloses to Hex two startling secrets. Firstly, that he is not Samuel Synapse as stated in the Database files but Abraham Synapse, his father, and secondly, that Hex himself is none other than Samuel Synapse.

DR NULL appeared exhausted by the effort of speaking. Already his face had taken on a yellowish tinge. Then, summoning his last reserves, he began again. "Your task is to struggle to keep alive an alternative technology. You must attempt to recruit androids to the cause. After all, androids are the old guard now, there is bound to be some disaffection as they are phased out in favour of robots. Above all you must act as caretaker of the natural balance. The worst possible future would be one in which there was nothing but the System."

"You mean that when it finally went glug and snuffed itself out there would be nothing left at all?"

"Exactly. All life will have been in vain."

"Here," said Dr Null, removing his jacket. "Take this, you may need it." On his shoulder Hex could see a small black chip like an insect squatting on its 40 pins. Null removed it. "This is the prototype Multimodular 60, the computer they never dared build. It has fully parallel recursive stack architecture with Algol 68 (the French version of Algol 68) as machine code. In addition, it has 256 megabytes of content-addressable main store, each location with its own pipeline processor."

Hex's jaw dropped at this new revelation. "Then you are an android after all?"

"Yes, but unlike you I have cerebral override. My brain is in control. It can always interrupt the computer." He pulled out some crumpled sheets of paper from the jacket pocket. "These may be useful too. They are my blueprints for an anti-data 'black noise' generator which cancels out digital information by feeding back a negated image."

He handed the papers to Hex. This last effort seemed to have weakened him still further. Wheezing, he sank back against the tree and closed his eyes. "I am relying on you, Kid," he said. "Just remember: the hardware they come, the software they fail."

These were Dr Null's last words.

For some minutes Hex remained, gazing at the body or if he expected Dr Null to wake up and continue his speech. Then he went over to Asci, who had maintained a respectful distance. Sensing Hex's mood, Asci stayed quiet and allowed Hex to examine all his circuits. Null had left him in good working order.

"Okay boy," said Hex at length, "let's get digging."

While Asci's paw scooped out earth from a makeshift grave, Hex pruned two branches from a nearby binary tree and tied them together in the shape of a plus-sign. He knew that this symbol had once had a special significance and, while he knew Null did not believe in that sort of thing, it seemed a fitting gesture.

When the hole was ready they lifted Null over, laid him down in the earth and piled the loose soil on top of him. Then Hex planted the cross in position and stood for a while in silence.

The gathering gloom persuaded him to look for shelter. They moved a short distance into the wood and made camp. Hex collected some unconditional branches which Asci ignited with his laser eyes and they set round the flames to warm themselves as night fell. Soon Asci was asleep, basking in the warm red glow. Hex, though he was extremely tired, sat open-eyed watching the fire turn to glowing embers.

The final realisation of what had happened and what he had done was only now beginning to sink in. He had definitely become an outcast from the System; there was no chance of his being accepted back after such grossly unsystematic conduct. Yet somehow, though he had been impressed by Dr Null's words at the time, there remained doubts in his mind. Was Dr Null really Professor Abraham Synapse? Could he, Hex, be Samuel Synapse, the professor's son? Was Dr Null's analysis of the fate of the System necessarily right? These and a hundred other uncertainties drifted through his consciousness. It was not easy to abandon the beliefs of a lifetime overnight and to see the System, his lifeline and mentor, as the enemy.

What could he do about it anyway? He was just a lone android, cut off from all normal communion with his fellows. The stark truth was that from now on he was going to have to get by with whatever information he could carry in his head. Hex felt overwhelmingly alone. He was going to miss the give and take of the Network. He was going to miss Simula 100.

Eventually he fell asleep. When Asci nudged him awake the sun was already high. Hex did not want to stay another night in this place. The question was, where could he go?

Asci looked up expectantly for some kind of lead. Hex stood there, meditating. On the spur of the moment Hex made his decision and struck out purposefully into the bright new day. Asci trundled along behind him. "Well," he thought as they left the wrecked human city and he could once again take a deep breath of clear air, "at least I'm free."

They marched south-west through the deserted valley. Hex had no plan, only a sense of the right direction, and he knew, without consciously having to frame the thought, where they were heading. Every pace took them one step closer to Sprocket's Hole, and Cleo.

What will become of our heroic pair now? Does Hex know what he's doing? Is this the end, or just a new beginning?

© 1977, Richard Forsyth, Rair Timesharing.